

National Safety News



Designed to

Give You a Hand

in the accurate
detection of Atmospheric
Hazards

M.S.A. AROMATIC HYDROCARBON DETECTOR

Workers exposed to operations using aromatics are better protected when this precision instrument is on the job. Separately graduated for Benzene, Toluene, and Xylene, the M.S.A. Aromatic Hydrocarbon Detector enables testing crews to maintain an accurate check on concentrations, alert personnel when "safe-limits" are exceeded.

Because the length of stain in the detector tube increases with increasing concentrations of aromatic, guesswork is eliminated. The exact concentration expressed as parts per million can readily be determined on the cylindrical scale. The instrument is easy-to-use, requires no special training. Write for Bulletin No. DD-1 for complete details.

M.S.A. EXPLOSIMETER

Here's an easy to use, dependable instrument to help you scour suspected areas for explosive gas concentrations. Designed for day-in, day-out use, the M.S.A. Explosimeter accurately detects and measures the presence of inflammable gas or vapor hazards, gas leaks, etc. One-hand operation. Meter is calibrated from 0 to 100% of lower explosive limit. Bulletin No. DN-7.



M.S.A. CARBON MONOXIDE TESTER

Getting an accurate, fast story on potential carbon monoxide danger zones is an easy matter with this instrument. Employing the most advanced colorimetric method of carbon monoxide detection, the M.S.A. CO Tester indicates CO in the air from 0.001 to 0.10 percent by volume. Requires no special training to use. Accurate in the presence of water and gasoline vapors. Bulletin No. BY-1.

MSA
SAFETY EQUIPMENT HEADQUARTERS

Call the M.S.A. man on your every safety problem . . .
his job is to help you



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WHERE'S THE FIRE?

There are danger spots in every building (yours, too!) where fire is most likely to strike. These spots can be guarded day and night by a Kidde Automatic Fire Extinguishing System.

At the first sign of flame the Kidde system releases carbon dioxide (CO₂) which blankets the fire—literally smothers it instantly. You can protect several spaces with a single Kidde system . . . or have separate protection for such hazards as a dip tank or generator.

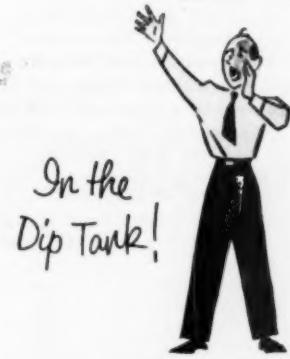
With a Kidde System, there is no water damage, no messy residue to ruin costly machinery, electrical equipment or documents. And that means no interruption in production. Find out more about Kidde Fire Protection today. Write to:

Walter Kidde & Company, Inc.
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Kidde

Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.

National Safety News, February, 1952



National SAFETY NEWS

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FEBRUARY 1952

Vol. 65, No. 2

THE COVER: Sometimes instruments find uses the inventor never dreamed of. The stethoscope will reveal unusual noises in a motor as well as in the human chest. In this case it is being used to detect which of two bearings is defective, thus perhaps requiring only partial dismantling. At Hawthorne Works of Western Electric Company, where this picture was taken, stethoscope tests are supplemented by more complicated laboratory examinations when needed.

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NORVAL BURCH, *Associate Editor*
TOM DODDS, *Associate Editor*
RALPH MOSES, *Art Director*

CARMAN FISH, *Editor*
ROBERT L. MEYER, *Associate Editor*
(On military service)
C. H. MILLER, *Advertising Manager*

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EASTERN OFFICE—800 Chrysler Building, New York 17, N. Y.

WESTERN OFFICE—111 Sutter St., San Francisco 4, Calif.

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This important improvement is found exclusively in Lehigh Safety shoes:

- ends torn socks
- insulates against heat or cold
- can't rub or chafe toes



LOOK AT THIS, DADDY!



1 SELL EYE SAFETY TO EMPLOYEES

Ask your distributor's representative to show you the kit of posters, pay envelope inserts, PA system scripts and other material that sells workers forcefully on *desire to use* proper safety eyewear.

2 SAFETY GLASSES FOR EACH JOB

A complete range of Bausch & Lomb safety eyewear, engineered to meet the most rigid tests for each job classification in your plant.

3 PROTECTION PLUS CORRECTION

For at least 50% of your workers prescription lenses are necessary to working efficiency as well as to safety. Your B&L distributor offers prompt prescription service on all types of industrial eyewear.

DADDY can't look now, dear. Not any more. He can't even know you as he once did because of the agony in his heart...

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The graphic story pictured above is one from a dramatic series by Bausch & Lomb designed to make your employees *want to use* safety eyewear wherever ruled. It's the all-important educational phase of Bausch & Lomb's *total* eye safety service. Write Bausch & Lomb Optical Company, 681-14 St. Paul St., Rochester 2, New York, for complete information on a total eye service.



BAUSCH & LOMB
Safety Eyewear

Air Casualties

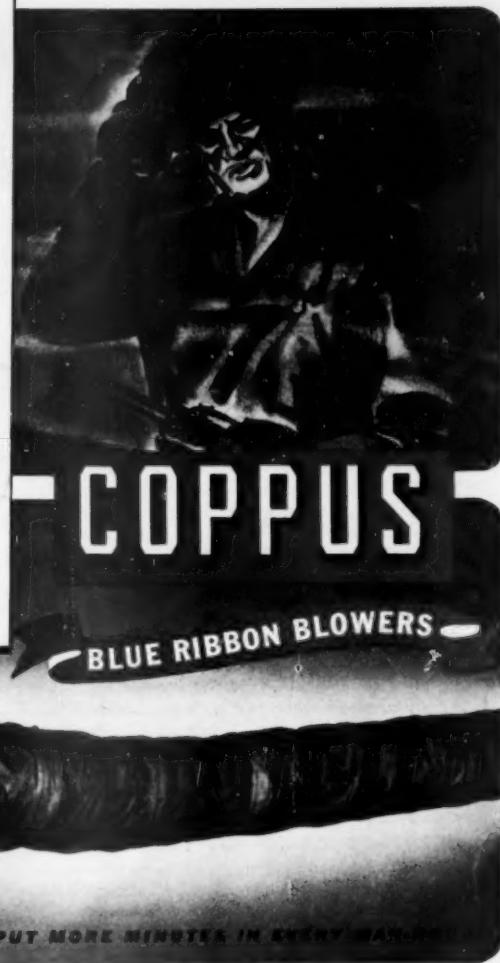
It's bad air that does it. But you can step up production by putting a Coppus Blower on the job to keep the air moving — and keep the men cool.

The kind of air a man works in has a lot to do with how much work he can turn out.

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A Coppus Blower or Exhauster helps avoid sickness and lassitude due to bad air . . . and improves morale, too.

Portable and adaptable for special purposes, Coppus Blowers and Exhausters will have dozens of uses around your plant. The "Blue Ribbon" (a blue painted band) is your assurance of quality performance at lowest cost.



THE BLOWERS THAT PUT MORE MINUTES IN EVERY DAY

CABLE MANHOLE AND TANK VENTILATORS — BOILER MANHOLE BLOWERS AND EXHAUSTERS — HEAT KILLERS — SHIPHOLD VENTILATORS . . . DESIGNED FOR YOUR INDUSTRY — ENGINEERED FOR YOU

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PLEASE SEND ME INFORMATION ON SUPPLYING FRESH AIR TO MEN WORKING:

<input type="checkbox"/> in tanks, tank cars, drums, etc.	<input type="checkbox"/> on boiler repair jobs.	<input type="checkbox"/> exhausting welding fumes.
<input type="checkbox"/> in underground cable manholes.	<input type="checkbox"/> motors, generators, switchboards.	<input type="checkbox"/> stirring up stagnant air wherever men are working or material is drying.
<input type="checkbox"/> in aeroplane fuselages, wings, etc.	<input type="checkbox"/> wires and sheets.	<input type="checkbox"/> drying of walls, sheets, etc., after treated with coating material.
<input type="checkbox"/> on coke ovens.	<input type="checkbox"/> general man cooling.	
<input type="checkbox"/> on steam-heated rubber processes.	<input type="checkbox"/> around cracking stills.	

{ (Write here any special ventilating problem you may have.) }

NAME

COMPANY

ADDRESS

CITY

3 better ways
to fight fires...

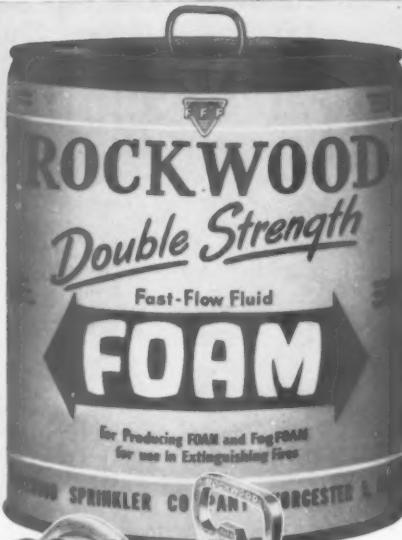
ALL WITH
ONE NOZZLE

- 1 Fog FOAM
- 2 Solid FOAM stream
- 3 High Velocity WaterFOG

Rockwood Double Strength FOAM Liquid used thru Rockwood FFF FogFOAM Nozzles enables fire fighters to cover burning surfaces with a blanket of FOAM faster and more efficiently. The 3 methods — 1. FogFOAM, 2. Solid FOAM Stream and 3. High Velocity WaterFOG combined in the one FFF FogFOAM Nozzle will give you a better weapon for extinguishing and controlling fires in gasoline and other flammable liquids and materials.

Rockwood FOAM Liquid and FogFOAM Nozzles are now being used to fight large running gasoline fires and spill fires in oil refineries, fires in oil storage tanks — or for crash-rescue fire fighting at airports and also for municipal and industrial fire fighting requirements. All these hazards require special proportioning systems for discharging the FOAM Liquid. Custom engineered proportioning systems to meet such unusual requirements is a Rockwood specialty. For complete data and prices write today.

Remember, the most efficient way to apply Rockwood FOAM Liquid and Wetting agent to most fires is thru Rockwood fire fighting devices.



New Lightweight type FFF FogFOAM Nozzle with FogFOAM screen attached. Available in three sizes for service on 1½" and 2½" or 3½" hose.

(1.) Thru the FogFOAM screen a wide pattern of FogFOAM can be applied directly to the burning gasoline without harmful agitation to the surface. This means faster and more efficient extinguishment of fire. FogFOAM screen can easily be attached or removed.



(2.) Thru FOAM shaper a solid FOAM stream can be projected to reach fires at considerable distances. FOAM Shaper can also be easily attached or removed.



(3.) If FOAM Liquid supply is exhausted, the Rockwood FFF FogFOAM Nozzle will discharge a wide pattern of High Velocity WaterFOG.



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PORTABLE FIRE PROTECTION DIVISION



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National Safety News, February, 1952

ALFCO

Allweather

ANTI - FREEZE

FIRE EXTINGUISHER

MODEL 5A-3

MADE WITH UNREMOVABLE ALRAUH* LABEL
IN GREEN COLOR, AN INTEGRAL PART OF THE
SHELL. THE LABEL IS MORE LEGIBLE AND MORE
EASILY CLEANED.

Rugged, welded construction of strong, golden-hued
Silicon Bronze . . . greater shell strength . . . lighter
in weight . . . highly polished to superlative smart-
ness in appearance.

The 2½ gallon Allweather Model 5A-3 Anti-Freeze
Extinguisher has been inspected and pressure tested
to 500 psi by Underwriters and Factory Mutual Lab-
oratories, and successfully meets all requirements.
Ideal for protection of ordinary Class A risks — no
danger of freezing at temperatures down to -40°F.
To operate — simply invert the unit — extinguisher
discharges a continuous stream 25 to 35 feet. Under-
writers rating: A-1.

* Panel Patent Pending

Foamite Models 3F-1 and 5F-1 for Class A and B risks and Soda-Acid
Models 3S-1 and 5S-1 Class A risks, are also available in Silicon Bronze.
Foamite Model 3F-2 and Soda-Acid Model 5S-2 are obtainable in Stain-
less Steel. When ordering be sure to refer to Model number.



OUR 2nd Century
of Leadership in
FIRE PROTECTION

ALFCO



FATAL SHIPYARD FIRE \$150,000 LOSS, 1 DEAD

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The fire is believed to have started when a boat-owner, working in the bilge of his boat and using a hammer and chisel on an exhaust pipe, struck a spark which ignited fumes in the compartment.

Avoid \$150,000 sparks in your plant — USE AMPCO SAFETY TOOLS

How to choose Safety Tools

For tools subjected to impact and/or torque — specify tools of Ampco Metal.

For tools with cutting edges and gripping teeth — specify Ampco beryllium-copper tools.

For jobs around acetylene and certain other gases — specify Ampco Monel® tools.

*Trademark International Nickel Co.

A few dollars invested in non-sparking Ampco Safety Tools could prevent hundreds of costly fires and explosions which strike unexpectedly every day. That's why Factory Mutual Laboratories and other safety authorities approve and recommend Ampco Safety Tools for use in hazardous locations.

Equip your workmen with Ampco Safety Tools. You earn lower insurance rates, improve workers' morale for greater efficiency — and protect your plant against paralyzing disaster. Send for free Safety Tool Catalog.

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Ampco Metal, Inc.

Dept. NS-2, Milwaukee 15, Wisconsin

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T-8



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Look for the
PAX Rooster...
You can't buy a
better product!



PERFORMANCE
NOT PROMISES

PAX PRODUCTS Help You Cut Costs and Increase Production

Whenever you buy unproved and little known skin cleansers, degreasers, general-purpose cleaners for machinery and plant maintenance, or any other product similar to one that PAX makes, you directly influence your cost of doing business, your volume of output, and endanger your employee relations program. If you allow yourself to be pressured into buying products that have no reputation for satisfactory performance you take a chance on inefficient maintenance cleaning, and a probable increase in the incidence of dermatitis among workers, or at least the impairment of their skill and efficiency. Certainly poorly made and unproved skin cleansers provide workers with good reason to complain about washroom crowding at quitting time because of a skin cleanser that won't clean, that takes too long to do a good job, that dries or abrades the skin, that makes hands sore and chapped. That's why it's good business to buy PAX Products with more than a 25-year record of Quality and Performance—the finest products in their price class—products which have never been surpassed in the quality of their ingredients, in complete user satisfaction, in economy, in safety—products which help you another step forward in better employee relations—products that save you money and increase the production of every worker.

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PAX HECTO INK SKIN CLEANSING CREAM

—efficient, pleasant-to-use cleanser for quick, safe removal of typewriter ribbon and carbon paper smudges, and hectograph or other duplicator ink stains.

PAX DEGREASERS—powdered and liquid—will handle the toughest metal cleaning jobs better, safer, faster, and at far less cost.

PAX GENERAL PURPOSE CLEANERS to meet any or all specific cleaning needs.

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no shadow
of a doubt
about eye safety
with . . .*

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Time for Courtesy

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It may be the familiar "Voice with a Smile" of the telephone operator. Or a friend or business

customer. Or a stranger you're meeting — and judging — for the first time by telephone.

Any time is a good time for telephone courtesy. But right now, when the rush is on and

minutes are scarce, it is doubly appreciated.

All 'round the clock it saves time and tempers and helps everybody get more things done, more quickly.

BELL TELEPHONE SYSTEM

Stonehouse Stock Worded MISCELLANEOUS Steel Signs

Ⓐ

THIS DEPARTMENT HAS WORKED **105** DAYS WITHOUT A LOST TIME ACCIDENT

THE BEST PREVIOUS RECORD WAS **142** DAYS DO YOUR PART HELP MAKE A NEW RECORD

993-L

FIRE USE ONLY

HANDS OFF

931

FIRE EXTINGUISHER HERE

972

PRIVATE PROPERTY NO TRESPASSING

18007

VISITORS WELCOME

APPLY AT OFFICE FOR PASS

18110

THIS DEPARTMENT HAS WORKED **123** DAYS WITHOUT A LOST TIME ACCIDENT

ACCIDENTS ARE AVOIDABLE

992-U.S.

— PLEASE —

DRIVE SLOW

Think!

KILL EM

BEFORE YOU THROW THEM AWAY

953-D

A WINNER NEVER KNOCKS

A KNOCKER NEVER WINS

942-F

PLEASE TURN OFF LIGHTS

961-A

IF YOU ARE A SELF STARTER

THE BOSS WON'T HAVE TO BE A CRANK

944-F

NO SMOKING

971-A

SHUT DOWN THIS MACHINE

WHEN CLEANING OILING OR REPAIRING

938-R

PLEASE WIPE YOUR FEET BEFORE ENTERING THIS BUILDING

941

MAKING ALL DELIVERIES IN THE REAR

977

ALL WIRES

ARE EXTREMELY DANGEROUS

913

SAFE TO USE ON ELECTRICAL FIRES

990-X

FIRST AID KIT

977

NO SMOKING

ALLOWED IN THIS BUILDING AT ANY TIME CARRYING LIGHTED CIGARS PIPES OR CIGARETTES STRICTLY PROHIBITED

951-D

NO SMOKING

907

NOTICE TO THOSE SEEKING EMPLOYMENT

UNLESS YOU ARE WILLING TO BE CAREFUL TO AVOID INJURY TO YOURSELF AND FELLOW WORKERS DO NOT ASK FOR EMPLOYMENT HERE WE DO NOT WANT CARELESS EMPLOYEES

907

POSITIVELY NO SMOKING

986-B

NO SMOKING OR OPEN LIGHTS PERMITTED

943-D

 **Stonehouse**
SIGNS, Inc. Manufacturers

Stonehouse Building • 9th at Larimer • Denver 4, Colorado • AComa 2202

Our complete Catalog No. 9 free on request

"Signs Since 1863"

National Safety News, February, 1952

"THE MASTER OF FLAME"

ANSUL

DRY CHEMICAL
FIRE EXTINGUISHING
EQUIPMENT

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FIRST... in fire-stopping effectiveness with inexperienced operators...



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MODEL 20-B

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Ansul features include: 1) Patented nozzle which provides the most effective stream pattern for quick extinguishment of fires . . . in addition to forming a heat-shield for the operator. 2) Watertight and corrosion-resistant construction. 3) Easy, on-the-spot recharging after use without special tools . . . and many others.

Ansul "PLUS-FIFTY" Dry Chemical is non-corrosive, non-abrasive and non-toxic. It is safe to use on electrical fires of any voltage. And **ANSUL** extinguishers need only be inspected annually, **NOT RECHARGED**, adding **ECONOMY** to **GREATER FIRE-STOPPING EFFECTIVENESS**.

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CHEMICAL COMPANY
FIRE EXTINGUISHER DIVISION
MARINETTE • WISCONSIN

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ANCHOR FLANGE*
WINGUARD 400's

Here are two more styles
from Hy-Test's new line of
easier-than-ever safety
shoes made with exclusive
ANCHOR Winguard 400
steel toe tips. They assure
complete protection, perfect
comfort and the most
natural dress shoe style.

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now feature
exclusive
BOL TAN
LEATHER
INSOLES
with up
to twice
the wear
per pair



Insure Workers' Feet in Sure Protection . . .

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NATIONAL SAFETY NEWS

FEBRUARY 1952

LEADERSHIP ENDURES

DEATH has brought to an end the distinguished career of William A. Irvin. But his ideas, his will to serve, his energy and his courage have altered the shape of the country he served—and most particularly the shape and strength of the safety movement. Every time you see a drop in accident rates, you can say to yourself, "Bill Irvin's influence outlives him."

Mr. Irvin came into safety work in a difficult period. The country was at war. Production was skyrocketing. Labor was becoming scarce. Tremendous reorganizations were under way, requiring the training of the untrained, retraining the trained in new skills. Pressure for production was tremendous. The threat of a ghastly increase in accident rates faced us almost as starkly as the threat of terrible battle casualties.

As chairman of the War Production Fund to Conserve Manpower, and later as chairman of the Council's trustees, Mr. Irvin told the story of safety and its economic needs to top management men throughout the nation. Many of our strongest supporters today are men who were "recruited" by him between 1942 and 1951.

It is characteristic of Mr. Irvin that one of his last services to the safety movement was to suggest a capable successor to himself. This suggestion has been accepted enthusiastically by the Trustees, and Mr. Lee Warren James has been unanimously elected as new chairman of this vital part of the Council's organization.

You will find elsewhere in this issue considerable

information on Mr. James' background. I don't want to repeat that information here.

But I do want to stress the fact that in Mr. James the safety movement gains a brilliant and able leader, qualified by training and experience to carry on effectively the work Mr. Irvin launched and carried on so well.

He has the further great advantage of close personal acquaintance with Mr. Irvin, which has permitted him to share in both the knowledge of and the enthusiasm for safety work which made Bill Irvin a tower of strength in our cause.

Many of you will come to know Mr. James better in coming months. I am sure that as you do, you will realize as I do that safety leadership is an enduring thing, able to go on to the kind of triumphs that Mr. Irvin dreamed of. When an organization is built as solidly as Bill Irvin built the Council's Trustees, no incident, however tragic, can break the steady pace toward safer living which such a group has set itself.

We who loved Bill Irvin will grieve for him. But we are sure that under Mr. James's leadership, the safety movement will build a monument to Bill Irvin's memory—a monument of living, healthy people who are alive and healthy because of the great contribution he made to American civilization.

Ned H Dearborn



LIKE MANY another plant of recent construction, this factory and office building of The Upjohn Company near Kalamazoo, Mich., is located away from the center of the city with its congestion. Ramp from driveway leads bus loading platform under building with direct connection to aisles of operating departments on floor above.



UNDERGROUND TUNNELS at Boeing-Wichita plant keep employees off production floors while traveling to and from job locations. Locker rooms, toilets, lunch rooms, and other personal service facilities are in basement area. In some plants these facilities are located on mezzanines to conserve space and avoid congestion in production areas.

Panorama of

By GEORGE H. MIEHLS

DESIGN of plants to house the myriad industrial processes which make up the production capacity of this nation takes full cognizance of safety—from the time the employee enters the plant until he leaves.

Let us take a look at one of these plants. In accordance with the trend, it is located away from the center of the city, away from con-

This imaginary visit to a composite plant presents a summary of current good practice. Don't expect to find all these safety features under one industrial roof

gestion, where space is available for adequate parking and for expansion. It is on a main highway but you will note that as we approach the plant gates we ease off the highway away from the high speed lane, where we can reduce our speed fully protected by safety islands from the traffic rushing by.

Entrances for employee parking are not the same as the entrances for trucks. It is in the interest of efficiency and of safety to keep them separate.

The employee parking area is hard surfaced and well drained.

Lanes of traffic within the parking area are clearly marked. Over near the plant side of the parking area, we go down a wide stair, its width broken by several hand rails, so that the danger of falls is minimized. The stairs have non-slip treads and descent is easy because the steps are designed to be so.

At the bottom of the stairs, you enter a wide corridor which appears to extend indefinitely. Actually, however, you are walking beneath the trucking roads and the railroad tracks in perfect safety. Here you find locker rooms and

GEORGE H. MIEHLS is president, *Albert Kahn Associated Architects and Engineers, Inc., Detroit, Mich.* This article has been adapted from a paper presented at the Session of Coordinating Safety and Plant Engineering, 39th National Safety Congress. Photos, not otherwise credited, are from the Austin Company, engineers and builders.



THE MODERN PLANT CAFETERIA combines attractive surroundings and ease of cleaning. Glazed tile walls, acoustic tile ceilings, asphalt tile floors and stainless steel equipment for kitchen and counter are used in the cafeteria of A. B. Dick Company, Niles, Ill. A completely equipped kitchen is located behind the ceramic tile wall. Special ventilating ducts above the service counter remove food odors at their source.



REPRESENTATIVE of the modern industrial interior is the maintenance base of United Air Lines at San Francisco. Continuous runs of fluorescent lighting provide ample light. Light green paint has succeeded gloss mill white and dark dades. Service facilities, conveyors, and other equipment form integral part of structure. Stairways with standard guard rails and slip-resisting treads provide access to mezzanine from which those in charge of engine overhaul can observe operations.

a Safe Plant

toilet rooms which can be entered from the main passageway and which can be left by means of

strategically located stairs leading directly to the aisles of the operating floor. Off this main passageway, we also note the centrally located cafeteria and lunch rooms.

These facilities, it will be explained, could just as well have been located on a mezzanine floor. Such a floor would be reached from the parking area by stairs and an overhead bridge. The principle, however, is the same.

Trucking roads and railroad tracks are a production necessity, but they are also recognized as hazards. These hazards are avoided either by going down and passing

beneath them or going up and over them.

You might even find mezzanine facilities, to which the climb is normally higher than the descent to tunnels, served by escalators.

Going from the personnel accommodations to the operating floor, you note the hum of activity of the machines, the endless overhead conveyors, all carrying parts to this machine or to that, and you marvel at the maze of apparent disorder. Yet, by the time you have finished your tour, you will marvel at the harmonious arrangement.

The plant layout and plant equipment are, of course, the heart of the manufacturing operation. The building which houses this operation provides power for the operation and accommodates the personnel which motivates the op-

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RAISED LEVEL of pedestrian traffic along traffic aisle. Vehicular traffic is separated from foot traffic without increasing overall width of aisle. This arrangement can be used in tunnels, along walls and other locations where there are no cross aisles. (Gaudreau, Rimbach and Associates)



Trailer used by North Dakota Workmen's Compensation Bureau forms a mobile classroom which visits the State's industries to assist in training employees and supervisors. First-aid and accident prevention equipment, and personal protection devices are displayed. Trailer seats 15 persons.

"Here Comes the Safety Trailer"

Through this mobile classroom, safety organization and training are reaching North Dakota industries

TO many a North Dakota industry the trailer operated by the Safety Department of the State Workmen's Compensation Bureau is bringing a safety program right to the plant door. It is proving particularly helpful to the smaller establishments in communities not served by local safety organizations.

The use of a trailer as a mobile safety class room was introduced several years ago by Otis Bryant, Commissioner of the Workmen's Compensation Bureau. It had been extremely difficult to get employees together for meetings in the evening and meeting places were not always available. This also slowed

up the organizing of safety committees.

Meetings in the trailer are limited to 30 minutes and several are held each day so that local em-

ployers can send one or two men at a time. A typical meeting consists of showing the National Safety Council sound slidefilm, *Safe in Hand*, plus an explanation of the purpose of the meetings.

An invitation is extended to the men to join an industrial safety committee which would hold regular monthly meetings. The Department of Safety has worked out a plan for a basic safety training course of ten meetings, using ten sound slidefilms, questionnaires, and other materials. At the completion of the course certificates are awarded to those who have attended regularly. Whenever possible, the awards are sponsored by some service club with appropriate ceremonies.

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A display of safe and unsafe hand tools is shown before a group of industrial employees in the State Compensation Bureau's trailer classroom.



The Case of the Delinquent Cats

By ROY G. BENSON

I KNEW the cats had a home at the end of the pipe trench, but I figured it was none of my business. It wasn't at the time—but times change.

The end of the pipe trench was out beyond the last building where the civilized piping that provided heat, water and other utilities, parted company with the adventurous dropout and flare line that plunged underground and reappeared way out in the field. Numerous plant changes had provided plenty of holes for the cats to pop in and out of the trench and it was like the old shell game—now you saw them, now you didn't. I watched the boys put out food for them and they would pop up their heads. If you weren't too close, they'd pounce on it. If you moved a step too close, zing, they'd be through the sharp edged holes like jets disappearing into a cloud.

We even lifted the trench plate one day to look in on their home and from the bone, fur and feathers, realized that the lunch leavings that the boys were feeding the family were only dessert. Mother

cat really brought home the bacon. The cats may have been lean, but they weren't starving.

You should meet the family—there was mother, gray and rangy with a "he done me wrong" look in her eye, and three little bundles of fur with sling shot reflexes.

But the word got up to the office that this "poor" family of cats living in such a squalid dwelling would end up delinquents. Imagine being raised back of the plant and growing up without the knowledge of the finer things. Cats are such delicate things, you can never tell what neuroses might develop in their later years.

I wouldn't hurt the grand old lady's feelings for the world and everyone else felt the same way about her. Every other girl in the office was addressed by her first name after two days, but no one would think of addressing our grand old gal by anything but Miss Jones. It might be "old lady Jones" out in the yard, but to her face even the 20 year men said "Miss Jones," and she decided the cats should have a home—and that was that.

Not having volunteered or having been drafted for the job, I sat in my combination office and first-aid room and waited for a report. It wasn't long in coming. The cats had been captured, placed in a box, and were on their way up to the office—almost without a single casualty.

The man who brought me the news had a minor injury. The boys had worn heavy jackets and



leather gloves, but when closing the box barehanded he had gotten his hand too close to an opening and mother cat had taken one swipe. She put a claw clean through one of his fingernails. The whole job of capturing the cats was such a complex problem of applied psychology and engineering, that space doesn't permit going into all the ramifications. Taking care of the wound, I believed the incident closed.

Then I was told where the cats had been placed. In the office building there was a small anteroom in the vault. The box had been placed inside the door, the door closed except for a slit, and the box opened with a window pole. The pole was withdrawn and the door slammed shut.

I suppose it was only natural for me to wonder how the cats would be transferred from the small room to the quiet home that was waiting for them. But surely anyone who could convince four hardened plant operators to embark on such an adventurous mission would have no trouble with a doting mother and three babies.

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In his varied experience in safety work, Roy G. Benson, assistant manager of the National Safety Council's Industrial Department, has encountered both tragedy and comedy. The first of this series of humorous incidents appeared in the January issue and another will be published in an early issue. Sketches are by the author.



The pulp and paper industry is one of Sweden's most important industries.

Sweden's Joint Safety Board

By GUNNAR HULTMAN

Successful cooperation of employers and workers in other fields has led to their joint effort in a far-reaching safety program

PRACTICALLY all industrial workers in Sweden are organized and are members of the main organization — the Confederation of Swedish Trade Unions. Swedish employers are also extensively organized under the Swedish Employers' Confederation.

The two confederations have special branches for textile, pulp, steel, mechanical industry, etc.

The organizations on both sides are now characterized by strength and stability, but it has not always been so. In the past, extensive labor conflicts were the means by which the two parties sought to protect their respective interests under collective agreements. These conflicts were bitter and widespread in the years following the first world war, and eventually the

legislature was approached to establish state control over the activities of trade unions and employers' organizations. In 1932 serious unrest occurred in the pulp industry, followed by disturbances in the building industry. Efforts to bring about statutory control of the internal and external activities of trade organizations were redoubled.



GUNNAR HULTMAN, *Managing Director of the Swedish Pulp Employers Federation, Stockholm, was the speaker at a luncheon meeting of the Pulp and Paper Section at the 39th National Safety Congress. The accompanying article is a revision of his address at that meeting.*

Special government investigations were made by committees. One of the committees held that closer contact should be promoted in economic and social questions between employers and workers. The organizations were advised to carry out the desired reforms.

The workers' main organization took the first step and suggested to the employers' association resumption of negotiations. Negotiations started in May, 1936.

The discussion resulted in a unanimously adopted proposal for a general agreement, signed by the two parent organizations on December 20, 1938. A Labor Market Board was established. The functions of this board included handling matters of general and major importance. The agreement contains provisions relating to the dismissal and suspension of work-

ers, limiting resort to direct action in economic disputes and the handling of conflicts involving vital public services and functions.

By basic agreement, capital and labor have endeavored to safeguard freedom in the labor market, and have aimed at abandoning industrial negotiations methods that irritate without being of value to either party. They have likewise demonstrated that they are able to discuss, and, in mutual understanding, solve current social and economic problems. It has been a common effort of both workers and employers to keep the state authorities aloof from decisions of the organizations concerning the regulation of wages.

The existence of the agreement does not, however, mean that open conflicts have been precluded as a means of pressure in the Swedish labor market. Freedom to resort to such means of pressure on vital issues continues to be of great importance, especially insofar as the consciousness of this freedom has a valuable stabilizing effect in the negotiation of peaceful settlements. In 1945 the employers and the social democratic workers

ousted the communists from their positions in the unions. In pulp industry we have had no labor conflict since 1932.

During the 13 years of existence of the General Agreement, co-operation between the parties of the labor market organizations has been broadened. Ten persons from both sides meet 10 times or more each year and discuss questions of importance relating to nationalization, women's pay, incentive wages, security at the place of work, vocational training, time studies and enterprise councils.

It was quite natural that the safety of workers should be the subject of early consideration in these efforts of understanding and was discussed in the autumn of 1939.

A subcommittee was elected with members from both sides and in May 1942 the Employers' confederation and the Confederation of Trade Unions adapted regulations by which the institution of safety representatives became generally obligatory. A certain minimum number of representatives is regulated in relation to the number of

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Interior view of the laboratory of a large Swedish paper mill.



An Association Starts A Safety Program

By A. E. MURPHY

I. THE SITUATION

1. High insurance rates
2. Lack of adequate records
3. Industry rates higher than national average
4. Poor experience of small plants
5. Management apparently not interested in accident costs

FROM THE EXPERIENCES of others a great deal can be learned about setting up a safety program. In establishing our own program we relied largely on the experiences of the National Safety Council and the Portland Cement Association.

The start of such a program, involving association funds, requires some careful planning. The need for the program has to be made apparent to the board. Facts must be carefully selected, and they must be pertinent. This information should be presented in a manner that is clearly understood; a short, quick story in terms of dollars and cents. This presentation should be made at a special meeting, or made a part of the agenda of the regular meeting.

Our program had bounced around for about four years be-

fore actually becoming an association function. There was interest on the part of a few members, but a lack of follow-up of the presentation of a suggested program at the annual meeting. Following this, the labor relations staff representative took over the direction of an area program. This activity stimulated enough interest in the labor relations committee to have them accept the safety program as a national project.

Since dollars and cents were to be the basis of our need for a safety program, our first job was to see what accidents were costing the industry. We found the manual insurance rates for our industry excessively high when compared to a similar industry. For example, the rates in Illinois for the folding paper box industry is \$1.27 per \$100.00 payroll as compared to \$.45 for the printing industry.

When the insurance underwriters were approached about possible change in the rates it was found that there was a lack of accident statistics for the industry as such; the rates were based on paper and pulp experiences. Hoped-for benefits would have to wait for industry records.

A study of the available figures in the industry did show that our accident frequency rate was higher (13.6) than the national all industry average of 10.14 in 1949. Moreover, our rate was much worse than those in the steel (4.96) or cement industry (5.18) both of which seem more hazardous than ours. This also indicated the need for a safety program with more and better records.

Somewhat to our surprise, one other reason for the need of this program was brought out; it was the lack of interest in accident prevention and the related cost on the part of top management. This condition may be the result of failure to take time to analyze reports and materials presented to them, or the information was not prepared and presented to them in a satisfactory manner.

Reviewing what transpired in determining the need for a safety program we find the following factors involved:

1. High insurance rates;
2. Lack of adequate records;
3. Industry rates higher than national average rates;
4. Small plant experience poor;
5. Management's apparent lack of interest in accident costs.

With the need fairly well established as far as we were concerned, objectives acceptable to members became rather important.

Probably the most tangible item to management is the reduction of insurance rates; this is a saving they can actually measure. This was the talking point and no one was allowed to forget that reducing accidents would eventually reduce

A. E. MURPHY is Executive Director, Folding Paper Box Association of America, Chicago. This article has been condensed slightly from an address before the Session on Associations and Their Safety Programs, 39th National Safety Congress.

rates. This, of course, means adequate records must be kept.

Keeping the tangible in mind, stress was also placed on the reduction of operating cost, which includes compensation and outside medical, because as accidents are reduced a reduction in related cost follows. Efficiency is usually improved, too, because as dangerous conditions and practices are corrected new ideas crop up and employee morale improves.

While the tangible is important, the possibilities of the intangible must not be overlooked. There is always the humanitarian aspect. We have many people in industry interested in the reduction of human suffering, especially from needless accidents.

Our industry, along with many others, is somewhat concerned with government controls and actions along these lines, and this point was not passed over lightly.

One Zone's Experience

The need for something on a larger scale is nearly always the result of the same type of experience on a smaller scale. In our case, the over-all need was based on the experience of a local group which embraced Wisconsin, Michigan and the northern halves of Illinois and Indiana.

This group had a well-balanced committee made up of small and large plant representatives with enough top management people on the committee to demand recognition. The chairman of this committee is a vice-president in charge of production in his company. They meet every other month to discuss common problems and

III. THE METHODS:

- 1. Use of established area experiences**
- 2. Comparison of different area rates**
- 3. Use of actual cost of cases**
- 4. Studying benefits of organized vs. unorganized effort**
- 5. Presentation of program to Board**
- 6. Program directed at top management**

maintain a contest among their members.

The contest gave us a fairly accurate accident frequency picture in this area. However, this information was not enough. We wanted to prove that organized programs had merit, so we obtained comparable figures from two other groups within the association. Fortunately, the figures did bear out our theory that there was an advantage in the organized over the unorganized. About 30 per cent of our membership was involved in these figures. The Lake Michigan zone, with its established program, had a frequency rate of only 8.9 compared to rates of 15.6 and 20.9 for the other two zones.

A cost figure based on these frequency figures was made possible through the interest and efforts of several members. They submitted to us their actual direct costs for long time cases within their plants over the period of a year. Our average of \$534 per case proved to be higher than the \$369 figure published by the National Safety Council in *Accident*

Facts.

With 50 per cent more companies and 60 per cent more employees the Lake Michigan zone's costs were only \$80,000 compared to \$117,000 for the New York zone. In brief, the direct cost of accidents in the organized zone was only \$14 per employee compared to \$23 per employee in the larger zone which had no safety program.

In addition to showing our higher cost, we were able to show in dollars and cents the savings being made in one zone with a program against other zones without such a program. These savings in some cases even exceeded the members' annual association dues.

Savings Story Sells Association

The local group committee presented the statistics to the labor relations committee through its chairman, who also served on the labor relations committee. The labor relations committee then recommended that the facts be presented and recommendations for a safety program budget be made to the board at the annual meeting.

The wisdom of having a recommendation to the board come from a strong committee with board representation on it rather than from a staff member should be fairly obvious from a promotional standpoint.

In presenting the program to the board, the committee performed an important function in pointing

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II. THE OBJECTIVES

- 1. Reduction of insurance costs**
- 2. Reduction of operating costs through accident reduction**
- 3. More efficient operation**
- 4. Prevention of suffering from accidents**
- 5. Reducing need for Government controls**

New Award Plan

Announced by National Safety Council

A COMPREHENSIVE plan of awards for superior industrial safety performance was approved by the National Safety Council's Board of Directors and Industrial Conference in a special meeting in January.

The plan, which makes sweeping and radical changes in the Council's standards for awards, was made after several years of study and discussion.

Top award under the new plan is the *Award of Honor*, which is, in effect, a continuation of the long-established *Award of Honor for Distinguished Service to Safety*, but with somewhat altered requirements. Other awards, in descending order of importance, are: *Award of Merit*, *Certificate of Commendation*, and *President's Letter*.

Some details on the standards for the various awards are presented below. A full statement of the standards, including tables and worksheets to be used in evaluating an establishment's eligibility for each award, will soon be mailed to all industrial members of the National Safety Council.

The plan was adopted in final form by a joint meeting of the Industrial Conference's statistics and contests committee and the award committee of the Board of Directors. Earlier meetings of the Conference and the Board had discussed the draft plan and had empowered the committees to put the plan into effect by joint action.

Following is a summary of the plan as adopted:

Who Is Eligible?

Every member of the National Safety Council having industrial operations is eligible for recognition. The only requirement is that the member make available to the

Council the information necessary to permit a satisfactory evaluation of the safety record. Both individual establishments and the company as a whole are eligible. The company or establishment being considered is referred to below as a "unit."

Must a Member Apply for Recognition?

Generally, no. All annual industrial injury reports sent to the Council will be evaluated automatically by the Council's Statistical Division, and recognition will be given for all qualifying records. For certain awards, perfect records of less than a year's duration will

be considered. In such cases, companies must apply for recognition.

When Will Recognition Be Given?

Recognition will be given promptly. In most cases, this will be soon after the end of the calendar year, when the unit sends in its annual report.

How Large Must a Plant Be?

There is no size limitation. The smallest unit reporting to the Council can get recognition for a good safety record.

How Good Must a Record Be?

A perfect safety record is the best that any unit can achieve, so

STANDARDS FOR RECOGNITION OF PERFECT NO-INJURY RECORDS

Award of Honor. A perfect record of 3,000,000 or more man-hours will be recognized by an Award of Honor, as follows:

1. The Award will be given automatically if the record covers an entire calendar year.
2. The Award will be given on application if the record covers any period greater or less than a calendar year but not less than 30 days.

Award of Merit. A perfect record of 1,000,000 to 3,000,000 man-hours will be recognized by an Award of Merit, as follows:

1. The Award will be given automatically if the record covers an entire calendar year.
2. The Award will be given on application if the record covers any period greater or less than a calendar year but not less than 30 days.

Certificate of Commendation. A perfect record of 200,000 to 1,000,000 man-hours will be recognized by a Certificate of Commendation, to be given (1) automatically, if the record covers an entire calendar year, or (2) on application, if the record covers two or more calendar years.

President's Letter. A perfect record of 10,000 to 200,000 man-hours will be recognized by an appropriate letter from the President of the National Safety Council, to be given (1) automatically, if the record covers an entire calendar year, or (2) on application, if the record covers two or more calendar years.

Upon termination of a perfect record which has qualified for recognition as above, the appropriate letter, certificate of award (depending on the total number of man-hours) will be issued, on application, showing the cumulative man-hour total up to the time of the disabling injury accident.

the plan provides for giving recognition to *every* unit that either completes a calendar year without a reportable injury, or accumulates a specified number of injury-free man-hours during a year. In addition, a unit which established a new high record for injury-free man-hours for its industry group will be recognized by the top award, the Award of Honor. Furthermore, units that have accidents during the year can get recognition if their injury rates compare favorably with the industry averages and their own previous rates, and if these favorable comparisons represent more than chance fluctuations.

How Often Can a Unit Get Recognition?

A unit can get recognition every year if the requirements for one of the awards are met. There is no minimum number of man-hours that must be worked between automatic (calendar year) awards.

What Kind of Recognition Will Be Given for Perfect Records?

There are four different awards for perfect records, each with a different requirement as to man-hours. Standards for the four awards are given in an accompanying box.

What Awards Will Be Given for Non-perfect Records?

An excellent though non-perfect record may earn an Award of Honor or an Award of Merit. The general method of evaluating such records is given below, but first it is worthwhile to look at some of the factors which must be considered in setting up such standards.

The National Safety Council wants to recognize good records, but it also wishes to make its awards proof of true excellence, not an inflated currency of praise that carries with it little actual meaning. A good record should be truly a good record, not merely the product of chance spacing of a few accidents on the calendar in such a way as to give a plant with a high accident rate an ap-

THE COMMITTEES	
<i>Committees approving the new award plan were:</i> <i>Statistics and Contests Committee of the Industrial Conference:</i>	
J. Howard Myers, Chairman, The Atlantic Refining Co.	C. F. Moberg, Vice-Chairman, Kraft Cheese Co.
George Gerry, Pickands Mather & Co.	H. B. Goodrich, Strathmore Paper Co.
Stanley Wright, General Motors Corp.	George Greenwood, Western Electric Co.
G. O. Griffin, Dravo Corp.	W. H. Roberts, Chicago & North Western Railway
Carter Kendall, Bethlehem Steel Co.	George Burkhardt, General Tire & Rubber Co.
D. T. Mould, General Motors Corp.	D. A. Farrell, United States Steel Co.
Edward Metzel, United States Steel Co.	R. W. Fickus, Goodyear Tire & Rubber Co.
<i>Awards Committee of the Board of Directors:</i>	
Dr. W. P. Yant, Chairman, Mine Safety Appliances Co.	W. Earl Hell, Mason City Globe-Gazette
Harold K. Kramer, The Borden Co.	Walter D. Ladd, St. Joseph (Mo.) Safety Council
D. E. Mumford, New York Central System	Harry E. Neal, Ohio Department of Highways
Robert T. Ross, Ford Motor Co.	Charles B. Shuman, Illinois Agricultural Association

parently good annual rate. It is the problem of chance spacing of a small number of accidents that creates the most serious difficulties in protecting the significance of the awards.

For example, everyone agrees that a hole in one from the first tee does not indicate that a golfer will go around the course in 18 strokes, or that a ball player who gets four hits in four times at bat in the first game of the season will bat 1.000 for the year.

By the same reasoning, everyone recognizes that for a plant to reduce injuries 20 per cent by reducing the number of accidents from 5 to 4 is a far less reliable measure of progress than for a large company to reduce its injuries by the same percentage, dropping from 500 injuries to 400. In the first case, chance or luck may have had a great deal to do with the reduction. In the second case, assuming that exposure remained about constant, the reduction is almost certain proof that something has been done to prevent accidents.

Fortunately there are statistical tests of reliability, very similar to those used in quality control work to check the reliability of production samples. For an exposure of a given size, these tests tell us how big a reduction must be to rule out the possibility that it is merely a chance fluctuation. The award plan provides that, in most cases, a reduction in frequency rate must be great enough to be reliable, plus an additional 10 per cent reduction to qualify for the Award of Merit and an additional 30 per cent reduction to qualify for the Award of Honor. The plan does not, however, completely bar a company from receiving an award if, despite a small increase in its accident rate, it has a rate well below the industry average.

One problem in determining standards was whether it was best to judge a unit's record in comparison with the same unit's earlier record, or whether it should be judged in comparison with the industry average. The plan adopted provides that both comparisons

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I Lose My Right Hand

(Fiction)

By BILL ANDREWS

February 1, 1952

SOMETHING I have been afraid of for a long time has happened.

Jim Mason, my right hand man, the best assistant a safety director could ask for, has laid his resignation on my desk.

He has been appointed safety director of Lonol, Inc., a machine tool outfit near Cincinnati. He is starting at something near to double what we pay him. More important, he will be heading up his own safety department. And it is my belief that he will handle the job well.

Jim has been with me for nearly four years. Before that he had been, after coming out of the Army

with shrapnel in his leg in '44, a machine shop hand at the ordnance plant. He'd been put on the safety committee, and I met him at meetings, came to appreciate a tough quality of mind, a quickness to see through bunkum, the guts to fight for what he thought was right.

So, when Jackson let me expand the safety department of Jackson-Barnes in '48, I called Jim to work as my first assistant.

Jim has studied constantly during his time with me, taking engineering courses by correspondence, attending both basic and advanced member training courses given by the National Safety

Council. He has commuted to Champaign for regular courses at the University of Illinois a number of semesters.

But I and the company got back substantial dividends for any time we gave him to go to school. He is one of those unspectacular inspectors and investigators. His reports have been terse, well-organized, sharply analytical.

As a speaker he is no spell-binder or tear-jerker. But in a group meeting he explains simply and clearly—and above all briefly. He is capable of anger when he meets supervisory double-talk, but he's a guy of great patience in dealing with workers, no matter how ignorant or stupid, who are making an honest attempt to understand.

He is, if anything, too honest for his own good. He thinks so clearly that he cannot believe that anybody in a high position can fail to follow the logic of his arguments. Therefore, he is sometimes quick to assume that timidity or villainy lies behind a resistance to his proposals.

I think his view of me has been mixed. In some ways he admires me and tries to imitate me. He could hardly fail to look up to me as the master, since when we first met I was the trained, experienced safety director and he was the shop hand. Some of that admiration has, I think, persisted through our years of work together.

Yet I can infuriate him upon occasion. In his direct honesty, it is hard for him to understand my willingness to compromise, my tactical excursions 'round Robin Hood's barn.

I remember a conversation last time the budget for the department was being planned. I had asked him to make proposals, and in two pages of typing he laid out an excellent case for a 60 per cent increase in the budget.

I took his arguments, adapted several of them to my uses. I pared the things down till my final proposal was a 30 per cent increase. Then I talked over that proposal with Jim.

He asked just one question: "Why?"

In that one word was perplexity, frustration, and doubt of me and my motives.

I took the things point by point, explaining the limitations I felt there were in what we could get. "But," Jim said, "I didn't put in a single item that can't be defended. I didn't put in a single expenditure that I don't believe will produce a dollar profit for Jackson-Barnes, either in direct savings or in good will and employee relations."

"I know that," I said.

"Don't you agree with the case I've built up?" Jim asked.

"I agree with you," I answered, and the hurt, bewildered look on Jim's face deepened.

I tried to make Jim see the reasoning processes of the company executive committee in a year of mounting costs, dubious sales trends, government regulations and short material supply. I tried to make him see that in the face of fantastically complicated factors and inadequate information, no group made up of very human people could be wise enough to act merely on the basis of logic. I tried to make him sense the pressure on Joe Roscoe as president to make gestures toward economy, on Larson as vice-president for manufacturing to avoid any more increases in cost than necessary, on our comptroller to be the perpetual no-man, advocating a profound skepticism toward any claims that a dollar spent would bring \$1.25 back.

Jim just scowled at me and said, "These dollars will bring back \$1.25, and more. Explain it to them. This is what they need, and the worse trouble they're in financially the more they need this."

Again, I tried to explain the human situation of budget making. I told him that I could expect a fast reading of my written proposals by men who were not in a position to test my claims but who were bound to a code of skepticism. Then, at best, I might have a half hour before the com-

mittee to defend my proposals. I might expect Larson, if I sold him well in advance, to speak for the more urgent proposals. But my voice would be only one of a dozen voices the committee would hear, each voice urging increased budgets in a time when the pressure for economy was terrific. Even if I was more vain than I am about my persuasive ability, I could not expect the executive committee to buy all I proposed.

"So why not ask for the moon?" was Jim's reply.

"Because if I ask for the moon, they'll be sure I'm doing a snow job on them, and I'll be less influential. So I'll ask for half what I think we ought to get and maybe get half that."

"You mean," Jim said in what was nearly a wail, "that we won't even get all of this?" He pointed disgustedly at my modest proposal.

I nodded.

He just sulked for a while, then came back to the attack. "But if we have to settle for 25 per cent of what we should get, why did you cut out of my proposal that suggested training course in Galeson and that ventilation revision in the paint department? You left in a guarding job and another training program here. They're good, but darn it, boss, they won't produce dollar for dollar, as large a profit as the ones you cut out. Galeson's had less training help than the main plant and has a worse accident picture."

I thought that answer out as carefully as I could. I said, finally, "These projects show. People on the executive committee will see them operate. They'll pay off, and next year we'll have better arguments for the other projects."

Jim was good and sore. He groused, "So, to sweeten the front office, you'll give them bad advice."

From most anybody else, that crack would have made me sore. But Jim's so darned straight, that I couldn't react in anger. Instead I tried to explain, "I don't think I'm giving the front office bad

the LIGHTER SIDE

NATIONAL SAFETY COUNCIL



advice. I am not primarily concerned with the accident rate at Jackson-Barnes in the period this budget covers. I or my successor

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The SAFETY VALVE

Keeping Fit

THERE WAS A TIME when manpower, both hourly wage and executive, was a commodity to be bought on the open market. Now business realizes that people are not expendable and is trying to keep them healthy and happy in all employment brackets.

That goes for the highest as well as the lowest paid groups. How to make net pay, after taxes, attractive enough to compete with jobs that offer fewer headaches and more time for fishing is one of the problems. Protection against occupational diseases is another.

Big shots have occupational diseases, too. Ulcers, heart flutters, obesity, insomnia and nervous breakdowns, are among the things that cut down efficiency and shorten careers. When the pressure gets too heavy, Mr. Big seeks medical advice. He is told to slow down — or else — by a doc who often is burning the candle at both ends more rapidly than his patient.

If a man gets enough sleep he can take a lot of punishment on the job. Insomnia accounts for many a bad disposition and many an unsound decision.

How much sleep to get and when to get it is an individual matter, although working hours in most places are somewhere between the preferences of the owl and the early bird.

Not being a psychologist or a medicine man, I don't know the answers. I've done my share of worrying. But I've learned one thing — that losing a few hours' sleep won't kill you. Sometimes, because of something I ate or something less tangible, I'm still awake when it's 1:30 by the clock on the nightstand.

Some people keep a pad and

pencil handy to jot down the bright ideas that come to them at wakeful hours. But I can't remember a worth-while idea that came to me at such times, nor have I ever solved any pressing problems. Sleep will come before 2:30 if I don't pursue it or try to do next day's work.

Taking naps after lunch is highly recommended. My father, who has done it for years, recently passed his 90th birthday. But how many working places have the facilities?

A City's Past

A GOOD FRIEND of mine down in New Orleans, who helped to make my recent visit there something to be remembered with pleasure, feels that the piece in the December *Safety Valve* didn't do the city justice. He was referring specifically to the reminder that the place was once a plague center.

Yellow jack and cholera, he says, are a long way back in the past, so why bring them up?

Well, history, good and bad, is one of the things that makes a place interesting. No head has been lopped off in the Tower of London for several centuries but the axe and chopping block still have a powerful fascination for sightseers. And the grim tower outpulls St. Paul's Cathedral as tourist bait. London, incidentally, is also widely known for a deadly plague and a disastrous fire.

As far as I could notice in New Orleans, the local attitude seemed to be, "See how far we've come!" That beautiful little booklet the Holmes department store hands out to tourists doesn't hesitate to mention the epidemics of the last century.

Now a visitor can't spend a week in the city without running

into any hazards more serious than the antique shops on Royal Street. I have the greatest admiration for the way the city has overcome obstacles, preserving the old time charm of the French Quarter while building a magnificent modern city across Canal Street.

(Wonder if my bank balance would stand a trip to the Mardi Gras?) * * *

In This Issue . . .

COORDINATING SAFETY with plant engineering has resulted in the design and construction of many industrial plants almost equal to the composite one described in the leading article. Light, ventilation, handling material facilities, and handling traffic in and out of the plant are among the points to be considered in achieving built-in safety. (Page 18)

Dispossessing a family of beleaguered cats from their home is not a common industrial operation but it can be a dangerous one, requiring a knowledge of engineering and psychology, as well as protective equipment, as Roy Benson found out. Here is another of his experiences with a humorous side. (Page 21)

High insurance rates, inadequate records and an attitude of apathy toward accident prevention summed up conditions in the folding paper box industry before the present safety program was started. The experience of one group provided the data needed to sell the entire association. (Page 24)

There comes a time in many organizations when a valued assistant finds greater opportunities and rewards elsewhere. That's what has happened to the Jackson-Barnes safety department in this month's installment of the Safety Engineer's Diary. (Page 28)

Carmen Fish

Prominent Attorney Heads Trustees



LEE WARREN JAMES
Chairman of the Trustees, National Safety Council



WILLIAM ADOLF IRVIN
1873-1952

LEE WARREN JAMES, prominent New York attorney, has been elected chairman of the Trustees of the National Safety Council to succeed the late William A. Irvin.

Shortly before his death, Mr. Irvin proposed to the Trustees that Mr. James be elected chairman. This was done, and at the same time the Trustees elected Mr. Irvin honorary chairman.

Mr. James is a lawyer with 50 years' experience in the general practice of law, serving varied interests in all branches. Among his clients were many of America's greatest corporations. Many companies have started under his direction, and he has been an executive of an insurance company writing life, accident and health insurance.

He was chairman of the non-partisan committee for the adoption of a commission-manager form of government for Dayton, Ohio, the city in which, in 1896, he began the study of law in one of Dayton's most distinguished law firms.

For the past six years Mr. James has been president of the Metropolitan Club in New York City. During his term, he has guided the club through a critical reorganization period and has been instru-

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The passing of WILLIAM A. IRVIN on January 1, 1952, removes an outstanding figure from the steel industry and from the safety movement.

Throughout his long career in industry he was active in accident prevention. As a former president and member of the board of directors of United States Steel Corp., he had an important part in shaping the policies of an organization which had pioneered in industrial safety.

When the emergency of World War II brought multiplied accident problems in the hastily expanded war industries, President Roosevelt called upon the National Safety Council for help. Mr. Irvin accepted the chairmanship of the War Production Fund to Conserve Manpower. His untiring personal efforts made possible a greatly expanded program of accident prevention which was felt throughout American industry.

With the coming of victory, Mr. Irvin continued to serve the cause of safety as chairman of the National Safety Council's Trustees and head of its Public Service Fund.

Born in Indiana, Pa., December 7, 1873, Mr. Irvin became a telegraph operator with the Penn-

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Cause AND CURE

These examples, taken from actual cases, are presented for the use of people responsible for safety. It is believed that these, or similar cases experienced in the reader's own plant, can serve as a basis for safety discussion.

Wrong Signal Caller



A welder and his helper were engaged in welding sections on a chute. The large section of the chute was standing and leaning against a gravel conveyor and a load line from a crane was attached to the small section of the chute to hold it in place and keep the assembly secure while the small section was being welded to the large section.

The welder tacked the small section into position by standing on a short ladder which rested against the side of the chute. When he began the full weld, he signalled to his helper to release the load line from the sheet. A few minutes later, the chute suddenly fell and the welder was crushed beneath it.

The foreman had specified the use of a crane to hold the chute but he had not given the helper instructions to hold the chute with the crane until ordered to release the load line. The welder apparently believed that the chute would stay in position without support and had the load line released making the crane available for other uses.

Correction: The investigating committee recommended: (1) Supervisors designate an experienced employee to act as signal man during the absence of the foreman or regular signal man. (2) Instruct all operators of heavy equipment to obey signals given only by the foreman or designated signalman. (3) Instruct welders on heavy work to secure it thoroughly with blocking or load lines before starting to weld and not to remove the support until the job is done.

A Fast Start



Two employees went into a small wooden building during their lunch hour to get out of the wind and rain. They wired the door shut to keep it from blowing open. One employee attempted to start a fire in a wood stove by pouring gasoline from an open can on the slow burning wood. The flames jumped to the can, and the employee, to get rid of it, threw it toward one corner of the building. In a matter of seconds the inside of the building was a mass of flames. With flames blocking the door they managed to escape by breaking open a window. Both employees received severe burns.

Using gasoline to start a fire can lead to only one thing—disaster. Experience has shown that it takes a little while for a wood fire to burn well during rainy weather, and that gasoline will get it started in a split second, but this same experience has also shown that gasoline has resulted in severe burns to many employees and in several cases has caused the death of employees who have used it for this purpose.

Correction: In railroad, construction and other industries, wood or coal burning heating stoves are still common, and many employees just have not grasped the fact that quickening a fire with flammable liquids is exceedingly dangerous. It is suggested that every year with the advent of cool weather all employees should be reminded forcefully.

Hundred Million Dollar Loss

By LOUIS SCHWARTZ, M.D.

Industry's heavy annual bill for skin diseases can be reduced by increased attention to personal and environmental cleanliness

OCCUPATIONAL diseases of the skin constitute about 60 per cent of all reported occupational diseases. It has been estimated that the yearly loss in the U. S. from occupational dermatitis is about one hundred million dollars.

The causes of occupational dermatitis may be divided into predisposing and actual causes.

Predisposing Causes

Since only a small percentage of exposed workers develop dermatitis from occupational encountered irritants, there must be certain factors which predispose these workers to dermatitis. The predisposing causes have to do with race, type of skin, age, sex, allergic diathesis, presence of other skin diseases, and habits of personal cleanliness.

Race. The Negro race as a whole is less susceptible to the action of defatting, dehydrating, and photosensitizing agents than is the White race. On the other hand negroes develop keloids more frequently than does the white race. The Mongolian race have comparatively dry skins and are

more sensitive to the action of solvents and dehydrators.

Type of Skin. Workers with thin dry skin cannot stand the action of fat solvents as well as those with thick oily skin. Those with hairy arms and legs are more likely to develop comedones, acne and folliculitis from petroleum oils and coal tar than those with comparatively hairless skins. Blondes are more severely affected by solar radiation than brunettes, and the freckled redhead seems to have the toughest skin of all. Skins which perspire freely are often macerated, especially at the folds and are more likely to be irritated by potential irritants.

Age. Acute industrial dermatitis is more likely to attack the new, young worker, but chronic eczematoid dermatitis is more likely to occur among older workers.

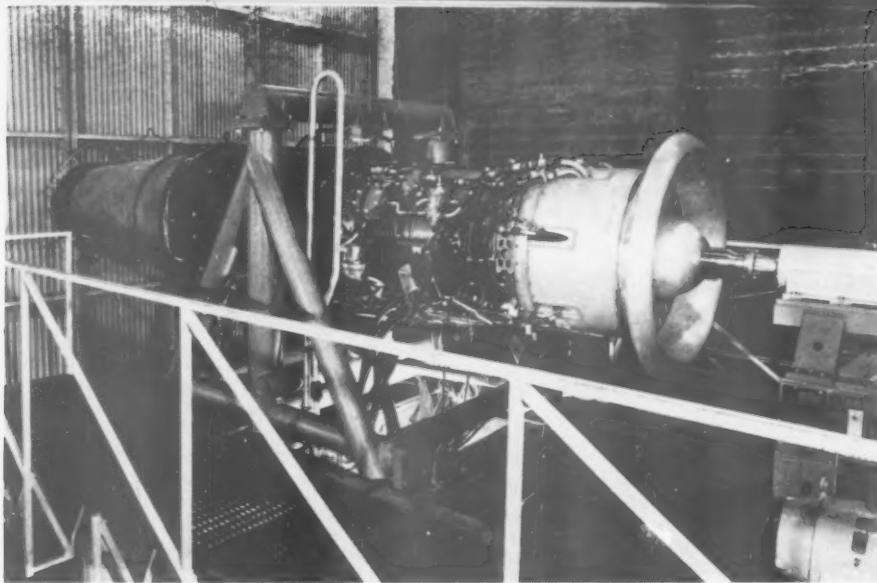
Sex. Although it is said that the skin of women is more sensitive than the skin of men, in my observation women have less industrial dermatitis than men; perhaps because they keep their skin cleaner and because fewer women than men are engaged in occupations where there are marked skin hazards.

Allergic Diathesis. The statistics of the U.S.P.H.S. show that about

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As an authority on occupational diseases of the skin, Dr. LOUIS SCHWARTZ is internationally known. For many years he was medical director of the U. S. Public Health Service and is now chief dermatoses consultant. He is also chief dermatoses consultant for West Disinfecting Company and has written numerous articles on the prevention of occupational skin diseases. This article was presented before the Railroad Section at the 39th National Safety Congress.





The latest turbodyne, the XT-37. This streamlined tiger of energy, designed for over 10,000 shaft horsepower is undergoing the Air Force 50-hour test. (Official U. S. Air Force Photo)

Streamlined Tigers

By COLONEL GILBERT E. TEAL

Fed high energy fuels, jet-propelled planes develop tremendous power which must be harnessed safely

FIRE and explosion hazards connected with jet and rocket motor development and operating are receiving increasing attention from fire and safety people because of the rapid increase of this propulsion mechanism, not only for aircraft but also for speed boats and locomotives, and for such completely isolated purposes as de-icing aircraft, mud blasting and snow removal on runways.

COLONEL GILBERT E. TEAL is Military Assistant, Office of the Secretary, Department of the Air Force, Washington, D. C. This article has been condensed slightly from an address before the Washington Safety Society.

Of course, even the simplest jet application is already old stuff to readers of *Popular Mechanics* and *Popular Science*, and children are familiar with model aircraft and racing cars propelled by escaping gas from a cylinder of carbon monoxide at the rear of the vehicle. However, while the principles are simple, the dangers inherent in handling high-energy fuels call for serious consideration.

Jet propulsion is merely an application of Newton's third law of motion: "To every action there is always an equal and opposite reaction." You are already familiar with the power-driven turbine and other applications of the simple principles utilized in the jet and rocket motors.

Basically there are two main types, the air-stream engines which include the thermal-jet, the intermittent duct, and the continuous duct engines all using externally introduced oxygen supply, and the true rocket, or chemical fuel motors, which include the dry fuel rocket motor and the liquid fuel motor.

The *thermal jet* consists of an opening through which atmospheric containing oxygen is drawn in by means of a rotary compressor, and combined with a liquid fuel in a combustion chamber where ignition or decomposition occurs. The hot gases which are a product of combustion are then passed to the rear through a gas turbine, connected on the

same shaft as the compressor and providing the power source for the compressor. The exhaust gases then pass through a constricted nozzle exactly the same as a fire nozzle and are exhausted to the atmosphere.

The *intermittent duct* engine, popularly known as the pulse jet, is the device utilized by the Germans in their World War II V-1 buzz bombs. This motor takes air into the orifice at the front and introduces it into a combustion chamber where it is mixed with fuel and ignited. The increase in pressure in the combustion chamber closes the air inlet ports in the same manner that a check valve in a line operates. The exhaust gases are expelled through the nozzle at the rear, relieving the pressure in the combustion chamber, the ports open, air enters, and the cycle is repeated.

The *continuous duct* engine, popularly called the ramjet, consists of a simple tube, which has no moving parts. In fact, it has gotten the name of the "flying stovepipe." It contains a screen grid, located in the tube cross section, called a flame holder. Combustion takes place at this point and the expanding gases, operating against the air pressure head, provides the motive force. To give you an idea of the power involved in a motor of this type, consider one of the first models, which utilized the exhaust pipe

from a conventional aircraft engine. This pipe generated more power than an engine from which it came.

I think it might be wise at this point to mention the difference between a so-called "jet" or turbo-jet engine and the turbo-prop. The turbo jet engine consists of an air compressor-combustion chamber-gas turbine wheel combination which functions in the following manner. Air is taken in through the opening of the inlet duct of a long, hollow chamber. It passes through a series of rotating wheels having fan blades on the periphery, called the compressor.

This compressor acts also in the nature of an intake suction to increase the flow of air above that which would normally be encountered by simple flight. This compressed air goes into a hollow chamber or series of chambers where fuel is introduced and ignition takes place. The burning gases in the combustion chamber continue through the rear portion of the engine where they impinge against another veined wheel which is revolved by the pressure of the gas on the veins. This wheel is known as the gas turbine, and the power impelled to this gas turbine is used to turn the shaft which drives the compressor at the front of the engine.

After passing through this gas turbine, the expanded gases are exhausted through the rear end of

the engine, under compression through what is known as the tail pipe, or in some cases through another simple combustion chamber where more fuel is added, causing greater expansion and higher velocity of exhaust. This latter device is known as an afterburner.

To make a *turbo-prop* engine, all we do is extend the shaft which is turned by the gas turbine on forward through the air compressor to the outside of the inlet duct and then place a propeller on the shaft.

It has been found that the propeller is a more effective propulsion device than the jet at lower speed ranges—under 350 to 400 miles per hour—and that greater fuel economy results when the turbo-prop type engine is utilized.

New Safety Problems

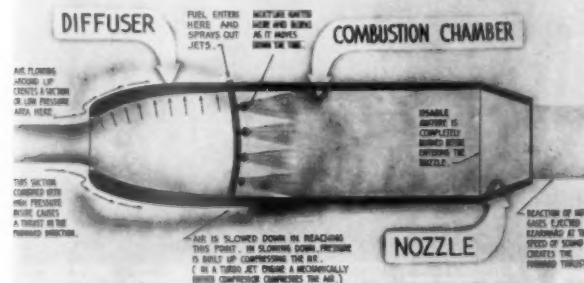
And now let us consider some of the safety problems introduced by these new types of aircraft propulsion devices. From a historical point of view, it might be interesting to recall that the first safety regulations on jet aircraft indicated that the blast effect from the tail pipe, and the incident heat cone involved, were the most serious hazards. But to date neither the blast effect nor the heat of the exhaust has resulted in a single death or serious injury. Needless to say, our present regulations have been revised accordingly.

The most spectacular hazard from the use of jet propulsion for aircraft is the danger of persons or foreign bodies being sucked into the intake of the turbo-jet. Already we have suffered four fatalities from this hazard in military type aircraft, and we may anticipate that accidents will increase when we start exposing the unsophisticated general public to these new hazards.

The first American suction fatality occurred when a design engineer was sucked into the intake of an XP-86 aircraft undergoing

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THE WORKING CYCLE OF THE SUBSONIC RAMJET ENGINE



Schematic diagram showing working cycle of subsonic ram jet engine.

High Voltage Testing of Electrically Insulated Wires and Cables

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1. Electrical testing of the insulation of wires and cables is necessary to determine the adequacy and operating qualities of the insulation.

2. A test determines such qualities as electrical strength, insulation resistance, loss factor, and capacitance. Testing is also used to locate defects which have caused failure in service.

3. Both AC and DC voltages are used in these tests. Some tests are made at low voltage such as 100 volts. The most important test, however, the test for electrical strength, is made by applying a voltage several times higher than the designed operating voltage. This test is made at high voltages — sometimes 100,000 or more volts.

4. Tests may be made either in the factory on new wire and cable or in the field on installed cable just after installation or after a period of service. This data sheet discusses methods of making both factory and field tests.

Factory testing

5. *Sparker.* The simplest test for integrity of insulation of small wire is the sparker. In this device, the wire is pulled through an electrode which is insulated from ground and maintained at high

This Data Sheet is one of a series published by National Safety Council. It is a compilation of experience from many sources. It should not be assumed that it includes every acceptable procedure in its field. It must not be confused with American Standard Safety codes, federal laws, insurance requirements, state laws, rules and regulations, and municipal ordinances. Reprints of Data Sheets are available from the National Safety Council.

voltage by a transformer. A common voltage for the electrode is 15,000 volts AC, but 30,000 and

50,000 volts are also used. This test applies a high voltage to the surface of the insulation. The conductor must be grounded to give a voltage stress across the insulation from the electrode to the conductor. The sparker is a convenient but crude test device.

6. In a commercial form of sparker for 15,000 volts, the transformer is given enough reactance so that if the electrode is touched, it will give a disagreeable but usually not injurious shock. The higher voltage sparkers are more dangerous. The electrode therefore should always be enclosed in a cage.



Figure 7. A dry test area with movable screens connected in series with interlocks. Upon completion of test, screens can be raised overhead so that floor areas can be used to advantage.



Figure 2. Immersion test area enclosed by fence. All gates are interlocked before the high voltage circuit is completed. Red lights flash during test.

7. The cage should be large enough so that flash-over from the electrode to the cage cannot occur. The cage should also be sufficiently long to prevent the voltage from leaking along the surface of the insulation, especially if it is wet, beyond the ends of the cage. Passing the wire over grounded

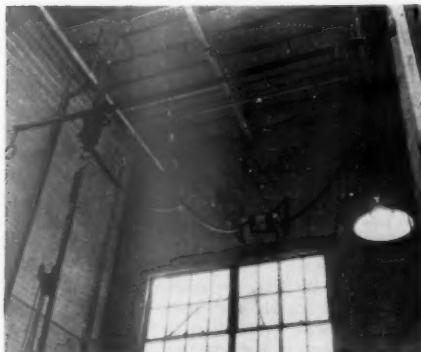


Figure 4. Method used in transmitting power from overhead lines to cable under test. Knife switch is operated manually by means of insulated pole. Insulated pole shown at left with insulated lead attached is used to connect overhead transmission line to cable under test. When test man enters area after test, hook is removed from line and placed on one of the grounded rings.



Figure 3. Closeup of gate interlocks, through circuit type.

metal sheaves close to the ends of the cage will limit the travel of this leakage. Covers of the cage must be interlocked with the supply circuit so that voltage cannot be applied unless the cage is closed.

8. When a fault (a hole or weak spot in the insulation) passes through the electrode, a discharge occurs between electrode and conductor, frequently causing a noticeable spark. Automatic devices

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Figure 5. High-voltage enclosure will accommodate either AC or DC test. This enclosure, in addition to having interlocks, is protected by a grounded mesh metal screen to prevent leakage during a DC test. Upon completion of the DC test, cable is immediately grounded at the control station. Grounding period should last from 5 to 20 minutes, depending on size and lengths of cable, before anyone is allowed to enter the test enclosure.

You Can Have Safety ... Quality Production, Too

By FRED O. SOUGHTON



Jumbo poster board and Quality Production score board are located at the west end of the parking lot. Changeable figures record previous day's production and number of days since last disabling injury.

A SOUND philosophy of operation, simply stated, can be very effective in an industrial safety program. This is well illustrated by the experience of a relatively new pulp mill located on the rugged north shore of Lake Superior. This Canadian project, built by the LongLac Pulp and Paper Company, Limited (a totally owned subsidiary of Kimberly Clark Corp.) produced its first bleached sulphate pulp in November 1948.

In the development of the safety program at Terrace Bay, certain factors were outstanding:

1. Our parent organization, Kimberly-Clark Corp., has been

FRED O. SOUGHTON is Services and Safety Supervisor, LongLac Pulp and Paper Company, Limited, Terrace Bay, Ontario, and General Chairman, Northwestern Branch, Ontario Pulp and Paper Makers' Safety Association. This paper has been adapted from a talk before the Pulp and Paper Section, 39th National Safety Congress.

active in the safety business longer than most of us can recall and was able to provide much valuable know-how.

2. During design and construction days, safety was literally built into the project.

3. We were fortunate in having a top management which insisted on safety as an integral part of operation.

And two important pre-start-up activities paid real dividends:

1. An intensive two month building-by-building safety inspection netted some 286 mechanical hazards which were dealt with promptly.

2. Mill employees who were to handle operating jobs were hired well in advance of start-up and carefully trained in operating procedures. This training included the use of individual job write-ups which incorporated the safety measures related to each job.

Confronting us in the early days were facts, which to say the least, were somewhat foreboding. Estimates of from three to seven years were given by experts as to the amount of time which would be required to develop an effective safety program in a new mill. New sulphate pulp mills which had gone into operation in Ontario had suffered disabling injuries at the rate of one every four or five days during the first two or three years of operation, with frequency rates well above 50.

Such negative projects were a challenge to our ingenuity. The thought of a LongLac employee suffering a disabling injury every four or five days spurred us to action.

There was no time to experiment, except on one point. Statistics indicated that up to 90 per cent of all industrial accidents were due to "human" rather than "mechanical" hazards. That being so, we resolved to expend the bulk of our time and effort in this direction.

To do this we needed a basic theme which could be sold to supervisor and workman alike. "Safety First" did not appear to have these qualifications, so "Production with Safety" was adopted. ("Quality" was added later.)

At the main entrance to the mill is the Safety Contest Board, showing the plant standings in various contests.

The "dog house" is reserved for departments with less than 100 safe days. Names of departments appear on the side.



It was determined that accident prevention would be a function of the line organization, stemming from the mill manager through the superintendents and foremen in the same manner as any other management function. If your top management is not "sold" on safety, if its backing leaves something to be desired, it is your responsibility to do a sound selling job. I am convinced that top management wants to do the right thing and will if properly informed.

To deal effectively with the varied human failures, we must also influence the minds of those who are our working force. And while terms applied in this field may carry such labels as creating "safety consciousness" or "safety awareness," the techniques which have paid off with us are directly related to sound advertising principles. But let me also state that the same dynamic effort must be incorporated in selling safety as selling any product. Simple reminders aren't sufficient. A small sign at the mill entrance won't "do

the trick." Something more spectacular is needed. Call it "tinsel," if you will; we did at Terrace Bay, but we found that we did not have enough of it. An increase in the amount used brought almost immediate results.

Throughout 1949, the first calendar year of operations, we experienced 18 disabling injuries (an average of one every 20 days) for a frequency rate of 13.76, believed to be the safest pulp mill start-up on record on this continent. This was brought to our attention first by a telegram from William H. Burnell, first vice-president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers.

The second year we operated, 1950, saw a sharp reduction in our accident experience. Disabling injuries were cut to 8 (one every 45 days) and the frequency rate dropped to 5.91. Work days lost were reduced to 67 from 656 the previous year while man-hours worked increased to 1,350,000 from 1,308,000. Results achieved placed us in second position in Class "A" of an Ontario-wide Pulp and Paper Safety Contest and brought a Certificate of Achievement from the National Safety Council. At the same time production increased and the quality of our product improved. (During the first nine months of 1951, man-hours worked exceeded a million with a disabling injury frequency rate of 1.84.)

Many of you will recognize what

seems to be old stuff in our program. Actually, I doubt if there is much in our setup that differs from other effective programs. But I believe we put more than average emphasis on advertising methods.

Let's take a look at some of the "tinsel" used to create safety awareness. We contend, for example, that it is very important to make some impression on every employee at the start of each shift. To accomplish this we have the following:

1. *A Jumbo Billboard, 18 x 32 ft. (located at the west end of our parking lot).* This billboard uses the jumbo posters published monthly by the National Safety Council. It also proclaims our "Quality Production with Safety" theme and has interchangeable space for "Yesterday's Production" and days since last accident.

2. *A Safety Contest Scoreboard, 7 x 15 ft. (located at the left side of the main entrance to the mill).* This huge scoreboard shows the relative positions of 11 pulp and paper mills in an area safety contest. A 2 x 3 ft. interchangeable panel on this sign gives us room for any special announcements. (e.g. World Series scores.)

3. *A Dog House (located at the right side of the main entrance to the mill).* This is a full size 3 dimensional dog-house with a cut-out dog, perched atop a 6 foot pole. It is reserved for any LongLac Unit (there are 20 of them) which has less than 100 safe days to its credit and there is room on the side for the names of any such units.

4. *Safety Slogan Contest Board, 6 x 7 ft. (located just inside the front door)*
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Personals

Ainsworth Heads AMS

CYRIL AINSWORTH, technical director and assistant secretary of the American Standards Association, has been elected president of the American Museum of Safety. Mr. Ainsworth will be the fifth president of the Museum—the oldest safety organization in the country.



Cyril Ainsworth

Mr. Ainsworth has taken active leadership in ASA's safety program since 1931. The American Safety Standards developed under the procedures of the American Standards Association are used as a basis for uniform state and local safety regulations all over the country. They represent the work of safety engineers in all branches of American industry, technology and government.

In 1935 Mr. Ainsworth helped organize the Greater New York Safety Council. He is the U. S. member of the International Accident Prevention Committee, International Labor Office, and is also secretary and a director of the Greater New York Safety Council as well as trustee of the American Museum of Safety.

New ASA Officers

ROGER E. GAY, president of the Bristol Brass Corp., Bristol, Conn., was elected president of the American Standards Association for 1952.

Edward T. Gushee, vice-president of the Detroit Edison Company, was elected vice-president.

New board members are Colonel Willard Chevalier, executive vice-president, McGraw Hill Publishing Company, New York, member at large, and Robert D. Bonney, director of manufacturing for Congoleum-Nairn, Inc., representing the American Society for Testing Materials.

King Heads California Safety Society

For 1952, its 33rd year of operations, the Southern California Industrial Safety Society elected as president John T. King, safety engineer for Union Oil Company of California. He has been on the Safety Committee of the Western Oil & Gas Association, the American Petroleum Institute and the Petroleum Section of the National Safety Council. Mr. King is well known in all phases of industrial safety and has previously served as Treasurer and Vice-President of the Southern California Industrial Safety Society. He is treasurer for the 1952 Western Safety Conference which will be held June 18 to 20, at Long Beach, California.

Serving with Mr. King as officers of the Safety Society are: Vice-President for Programs—John W. Dee, Guardian Safety Equipment Co.; Vice-President for Membership—G. W. J. McMillan, Southern California Gas Co.; Vice-President for Publicity—M. L. Andrews, Douglas Aircraft Co., El Segundo Division; Secretary—J. R. Shanahan, U. S. Electrical Motors, Inc.; Treasurer—M. B.



John T. King

Henry, Richfield Oil Corp. Outgoing president, A. M. Noyes of the Los Angeles Chapter, NSC, becomes chairman of the Board of Governors.

RUSSELL FRANK, for the past seven years director of safety and personnel for the Cleveland, Ohio, works of Ferro Corporation, has been promoted to the newly created post of safety director for the entire corporation, including both domestic and foreign operations.

During 18 years in safety work Mr. Frank has also been associated with Republic Steel Corp., American Shipbuilding Company and Chase Brass and Copper Company.

HUGH A. PTOLEMY, 909 Hannah Avenue, Forest Park, safety director for the Public Service Company of Northern Illinois for the past quarter-century, retired recently after more than 42 years service in the utility field.

Mr. Ptolemy recently received the National Safety Council's "award of merit" for "exceptional service to the cause of safety." This was the first time this award was presented. He has won other nation-wide recognition in the past for his work in the prevention of accidents. He has served as an of-

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*THE Multiple-Purpose
FLOOR-MAINTENANCE MACHINE THAT'S
Two Sizes in One!*

Here is a floor-maintenance machine that not only can be used for many types of floor care, but also affords the further economy of a machine that is two sizes in one. This 100 Series Finnell, in one of the larger sizes as shown above at left, can be reduced to the small size unit shown in circle.

Note the low, trailer-type construction of the machine, and how easily it goes beneath furnishings. Thus it is ideal for use in crowded areas. In fact, the dual size feature and low construction of the machine adapt it to use on many floors otherwise inaccessible to machine care.

As easy to handle as a household vacuum cleaner, yet this Finnell is powerful . . . fast . . . and thorough. Mounts a G. E. Drip-Proof Capacitor Motor . . . is equipped with Timken Bearings. And the ruggedly constructed worm drive, housed in an extra-capacity leak-proof gear case, lubricated for 1500 hours, assures smooth, noiseless performance. A precision product throughout. Three sizes: 13, 15, and 18-inch brush diameter.

For demonstration, consultation, or literature, phone or write nearest Finnell Branch or Finnell System, Inc., 2202 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

*With Water Tank and
Vacuum for Rug Scrubbing*



*With Dispenser
for Hot Waxing*



Interchangeable
Brushes, Pads,
Sanding Disc



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Polishing Pad



Steel-Wool Pad



Sanding Disc

FINNELL SYSTEM, INC.

Originators of Power Scrubbing and Polishing Machines



BRANCHES
IN ALL
PRINCIPAL
CITIES



Industrial Truck Drivers Need Better Training

NOT TRAINING industrial truck drivers costs industry many times the price of a proper program of instruction.

According to J. L. Van Cara, driver-training expert of the Automatic Transportation Company, Chicago, current training of industrial truck drivers, except in the largest firms, is poor. It costs industry millions of man-hours every year, he asserts.

Licensing drivers is, perhaps, a

too-ambitious project, but Mr. Van Cara would compromise for sound training programs, based on proven procedures that apply equally well to teaching individual drivers or whole classes.

The first step is to have the manufacturer's representative explain and demonstrate its characteristics when the truck is installed.

Before he gets onto the truck, the fledgling operator should understand its functions, abilities,

limitations, and capacity. He should know where the controls are and how they work. Only then should he get on the vehicle.

When Van Cara installs a truck for a customer, he makes sure the driver is aware that it is not in all ways like an automobile. He reminds him that the load in front makes a big difference in judging distance and speed, and in visibility. And when there is no load in front, the counterweight at the rear makes a big difference in handling the unit.

He proposes that drivers be instructed over a three-day period, the first day of which is largely spent in practicing alone with an unloaded truck. During this day's "laboratory class," the trainee will learn controls, speeds, and smoothness of operating.

The next day he will begin to use a typical load, and gradually will begin working into the area where he will be assigned. He'll learn traffic problems, the speed at which he'll work, and where he picks up and delivers loads. Also, he'll get the feel of working in the limited space of storage bays, as compared to the relatively spacious dimensions of most practice areas.

The third day he'll be on his own, most of the time, and before his shift is over he should be at ease with the truck.

Van Cara listed 17 points which he feels make an excellent basic code for any company's industrial truck operators:

1. Keep the body inside running line of the truck.
2. No passengers should be permitted to ride on the trucks (a rule of great importance).
3. Keep to right of aisles whenever possible.
4. Slow down when vision is obstructed.
5. Stop at doors, corners, exits, etc., and sound horn.
6. Use horn when approaching pedestrians.
7. Start, stop, or turn gently, not suddenly.
8. Face in the direction of travel always. Before backing up, look in the direction you will go.

—To page 46

**SUPER SAFE
UNDER
WET SHOES**

DAZZLING SELF-LUSTRE

SUPER SAFE, RAIN OR SHINE

SAFE TO WALK ON, SAFE FOR FLOORS

CETOX

the Hydraoxated carnauba

floor dressing that's extra safe all year 'round!



CETOX makes all floors super safe—especially throughout year's 30% inclement weather when the risk of slips and falls is greatest.

**Super safe—even under
wet shoes**

Normally, water underfoot acts as a lubricant. CETOX is extra safe under spilled or tracked in water. You simply won't slip, because



CETOX contains Carnauba with the slip hydراoxated out of it. No silicas, or abrasives added. It's *hydراoxated super safe!*

Beautiful and safe

Self lustre CETOX makes floors dazzling bright. It is a wet mop proof, tough wearing, dirt resisting, protective floor dressing that may readily be removed with the use of a mild detergent. In every way, CETOX is superior. For safety sake . . . put CETOX on your floors.

Write for complete information and
name of your nearest distributor.



Chemical Service of Baltimore
HOWARD & WEST STREETS • BALTIMORE 30, MARYLAND
MEMBER OF NATIONAL SAFETY COUNCIL.

Association Starts Safety Program

(From page 25)

out that often the weakness in a safety program is due to lack of close follow-up by management. This coming from one on the same management level can be quite effective.

An important point to remember is that our program was being continually directed toward top management. Management serves on the committees, receives bulletins and mailings, and is the contact on all transactions.

Many of the problems connected with the organization of a safety program can be made much easier by taking advantage of the valuable services offered by the National Safety Council and other associations, insurance companies, and your own members.

The members' attitude toward a program is important because it can be used for direction and emphasis. One could almost expect that selling the program to the board would be enough to stimulate the membership to active participation.

However, this is not always the case. Generally speaking, in any industry, there are three groups to contend with: those interested to the point of active participation, those interested in someone else doing the job while they share in the benefits, and finally, those apparently not interested at all.

The small plant is the one most often found in the last two categories. Since our organization is largely made up of small plants, we feel our big task will involve active cooperation in the program by this group.

In obtaining figures we confirmed within our industry what is a generally accepted fact—that the small plant has the poorest accident experience record. In our Lake Michigan group, the smaller plants (less than 15,000 man hours) had a frequency rate of 13.6 as compared to the large plants (more than 50,000 man

hours) rate of 7.6—almost twice as high.

Since 80 per cent of our membership is made up of small plants, it became quite apparent how much need there was for a program to help these plants. It is easy to lose sight of the fact that the small plant experience affects the rates of the larger plants, too.

We have found the larger companies ready to cooperate even though in many cases they are self-insured and do not benefit too much from a change in manual rates. A part of the willingness to cooperate can be attributed to the fact that an inducement in the form of a contest is part of the program.

Other reasons for participation

No Fumbling



THEY DON'T DROP shafts at the Torrance, California, plant of The National Supply Company, manufacturers and distributors of oil field equipment. A short piece of pipe, capped on one end and with welded hook and handle, is placed over each end of a shaft before lifting. The open end of the pipe is flared to make positioning easier.

are possible help with some internal problem such as lack of supervisory level interest in safety, paternalism, the shifting of responsibility, and the treatment of safety as a minor function.

Usually, where safety is treated as a minor function, the responsibilities are added to an already overloaded employee, or one not interested.

A typical manifestation of safety as a minor function is where management will rake down a supervisor for damage to equipment amounting to several hundred dollars. Yet, management will not say a word to him when he has an accident or two with known direct costs of over \$500 each. Bear in mind most accidents can be avoided by proper training and supervision.

The attitude of the smaller plants generally has been that they have nothing to offer, they lack personnel for a program, their experiences have no bearing on the overall picture, reporting is just additional work, and the staff safety man is just another inspector to bother them with things they already know. However, in the next breath they will complain because they are not receiving benefits on insurance rates. In some cases the association has made special efforts to get small plants out of the insurance pool because of their bad experience.

A fairly common attitude now is that since the association has a safety man, our problems are all solved and when we have difficulty he will straighten us out and we'll have no more accidents. The hardest task we have is to convince management that accident control is the individual plant responsibility under its own controls. Often, hiring an association safety man gives the member the idea that control is outside, or why else hire such a man. This idea can be corrected to a great degree by preparing a list of the safety man's duties and presenting them to the members.

Reviewing step five of the pro-
—To page 93

SUREFOOTED

as a fly (*almost*)

Each of the four soles shown, will REDUCE ACCIDENTS caused by slipping, and give extra long wear. Nearly all safety and work shoe manufacturers supply footwear with these soles.



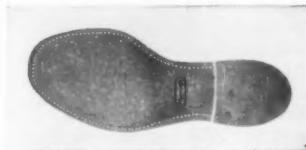
NEO-CORD

A fine cord and neoprene sole that is resistant to oil, grease, gasoline, acids, caustics and heat. Cord construction gives NEO-CORDS a high non-slip efficiency for the life of the sole.



NEO-CORK

An outstanding cork and neoprene sole that gives long non-slip wear. NEO-CORKS resist gasoline, oil, grease, acids and caustics. They won't pick up metal chips, are waterproof and cushion the feet.



GRO-CORK

The finest cork and rubber sole. They are lightweight, waterproof and very slip-resistant. GRO-CORK soles won't pick up metal chips, they protect the feet from heat or cold, and are soft to walk on.



GRO-CORD

This remarkable sole, with its cord-on-end construction, affords non-slip footing and extra long wear. GRO-CORD soles should not be worn where grease, oil or gasoline saturates the footing.



Mr. SAFETY ENGINEER

Will you assist in a research program to obtain data on the proper sole to wear on a particular job? If so, let us know of any condition that is wrecking shoe soles or where footing is hazardous. We will cooperate with you, at no cost to your company, in determining what type of sole will be the safest and wear the longest.



GRO-CORD RUBBER CO.

LIMA, OHIO

Canadian Plant

GRO-CORD RUBBER CO.

of CANADA LTD.

Tillsonburg, Ontario

Truck Driver Training

—From page 42

9. Carry only loads for which the truck is meant.

10. Keep loads below eye level, carrying them just clear of the floor. If the load blocks vision, it should be trailed except on sit-down model trucks (a problem which can be avoided by selection of the correct truck for the load).

11. Never drive high lift trucks with platform or forks elevated.

12. Bent or damaged loading plates should not be used.

13. Reverse controls are not a substitute for brakes.

14. Driving with wet or greasy hands is dangerous, because it can cause the operator to lose control of the wheel.

15. Slow down for wet or slippery floors.

16. No stunt driving or horseplay.

17. Trucks should be returned to the charging station or parking area at the end of the shift.

Van Cara warns against drivers operating types of vehicles with which they are not familiar. "Recent years have produced a vast number of different types of industrial trucks, with new operating and control features," he points out. "A driver unfamiliar with recent engineering changes can damage a truck, or even injure himself."

Trouble is likely to result from overloaded trucks, from carrying questionable loads, or from carrying loose material.

The safety problem is associated not only with the driver, but with the entire plant, Van Cara insists. A number of companies have achieved remarkable results by taking simple precautions. Route markings on floors and walls, for instance, are a good reminder to pedestrians that trucks are around. This is especially true at cross aisles, or where there are blind turns.

"It's a good idea, too, to warn drivers, by signs and signals, of unusual ramps, blind corners, or low overhead obstructions," he concludes.

IT'S UNFAIR to ask a man if he will be available for an unpleasant task a month hence. What can he say?

Approve Manual for Construction Safety

The American Standard Manual of Accident Prevention in Construction, A10.1-1951, has just been approved by the American Standards Association.

The standard presents, by illustrations, specifications and simplified text, the safe way of performing construction work and emphasizes the costly results of incorrect, unsafe practices.

The manual contains 43 chapters dealing with such subjects as sanitation, first aid, building demolition, electric welding, handling and storage of materials, excavation, explosives, pile driving, scaffolding, power saws, shafts, boilers, temporary electrical installations, fire hazards and prevention, occupational diseases, etc.

The Associated General Contractors of America developed the first edition of this manual 25 years ago, and they have revised it periodically to make sure that it reflects the latest industrial practices. All editions since 1938 have been submitted to ASA for approval as an American Standard. Approval as an American Standard certifies that a consensus of all parties-at-interest has been reached on the provisions of the standard.

Copies of the Manual will be available from the American Standards Association, 70 East 45 Street, New York 17, and the Associated General Contractors of America, 1227 Munsey Building, Washington, D. C.

American Standards Assn. Honors NBS

THE NATIONAL BUREAU OF STANDARDS was recently honored by the American Standards Association on the Bureau's 50th anniversary. A feature of the ASA's annual meeting, at the Waldorf-Astoria in New York on October 22, was the presentation of a scroll congratulating the Bureau "on a half-century of service in the public interest and in the improvement

of the standard of American life." ASA President T. D. Jolly made the presentation to Dr. A. V. Astin, NBS acting director. The scroll reads:

The American Standards Association honors the National Bureau of Standards for . . . Its development and custodianship of fundamental standards of measurement . . . Its contributions to the science and art of measurement . . . Its manifold services to science and to industry . . . Its innumerable researches . . . Its achievement in extending the use of the scientific method through its cooperation and assistance to other organizations and institutions, particularly in the advancement of voluntary standards . . . Its leadership in technology throughout the world, thus promoting comity of nations . . . and congratulates the Bureau on a half-century of service in the public interest and in the improvement of the standard of American life.

Since its establishment in 1901 NBS has, in fulfillment of the responsibilities given it by Congress, taken an active part in the establishment of thousands of standards—not only basic laboratory standards, but also standards of quality and performance for the guidance of manufacturers and purchasers.

NBS also distributes annually some 20,000 standard samples of various materials used to establish points of reference in science and industry, to calibrate laboratory processes, and to maintain uniformity of production. It has been estimated that NBS staff members have contributed to the development of half of the standards promulgated by the American Standards Association since the ASA's founding by the national engineering societies in 1918.

"A pound of floor wax, please," said the young housewife to the clerk in the stationery store.

"Sorry, ma'am," he replied. "We only carry sealing wax."

"Don't be silly," she snapped. "Who'd want to wax a ceiling?"

You can always spot a well-informed man. His views are the same as your own.



for industrial *First Aid*



MERCUROCHROME*

(H. W. & D. BRAND OF MERBROMIN, DIBROMOXYMERCUrifluorescein-SODIUM)

Do not neglect wounds, however small; even scratches and small cuts may become infected if they are not promptly and properly treated.

'Mercurochrome' (H.W. & D. brand of merbromin, dibromoxymercurifluorescein-sodium) is one of the best antiseptics for first aid use. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association for this purpose.

The 2% aqueous solution is not irritating or toxic in wounds; minor injuries are reported more promptly when 'Mercurochrome' is the routine antiseptic, because treatment is not painful.

'Mercurochrome' solution keeps indefinitely; the color shows where it has been applied.

Physicians have used 'Mercurochrome' for more than 28 years.



Be sure to include 'Mercurochrome' in your first aid supplies.

*Reg. U. S. Pat. Off.

HYNSON, WESTCOTT & DUNNING, INC.



BALTIMORE, MARYLAND



Green Cross News . . .

Activities of Local Safety Councils and Chapters

Compiled by TOM A. BURKE

Director of Local Safety Programs, Field Organization, NSC

Fred L. Barrows Appointed New Jersey Manager

FRED L. BARROWS, for the past five years assistant manager of the Philadelphia Safety Council, has been named to succeed Manager Fred M. Rosseland of the New Jersey Safety Council, who retired recently. Barrows took up his new duties early in January. He joined Walter Matthews' staff at the close of World War II, during which accident prevention activities had increased greatly both in governmental and private fields. A man of broad experience in general industrial safety and plant fire prevention work, Mr. Barrows fitted nicely into the direction of the Philadelphia Council's expanded programs. He has made many friends in the area who feel that this step up the ladder is well deserved.

New Springfield Manager

JAMES K. WILLIAMS, Jr., director of recreation and parks, Keene, N. H., a former resident of Springfield, Mass., has been selected as manager of the Hampden County Accident Prevention Council, to succeed the late Ralph W. Ellis, who died on November 3. The new appointee assumed his managerial duties on January 2. He is a graduate of Springfield College. He was boys' work secretary at Springfield's West Side "Y" from 1946 to 1948 when he entered the graduate school at Springfield College to work on his Master's degree. Two years ago he accepted the post in New Hampshire. Williams is a Marine veteran of World War II, 27 years of age. He is married and has three children.

Red Face Department

That rosy hue around the Davenport Hotel recently at the Governor's State Government Conference was David Kaye's face (according to the "Spokane Spokesman-Review"). Kaye, manager of the Spokane Area Safety Council, was sporting a cast on his right arm after he chipped a bone in his wrist while skating one day at Manito. Commented Kaye: "Am I embarrassed!"

Pictorial Report

The annual report of the Lincoln-Lancaster Safety Council held January 23, was unique in that it consisted of a pictorial record of safety scenes, events and excerpts from talks made by council members and others in carrying on the work of the organization during 1950. The audio-visual story of the council's activities was narrated by Bob Johnson of Radio Station KFOR. Transcriptions, photographic slides and movies were used in this novel presentation. The scenario was prepared by Manager Gifford Mullins.

U. S. District Attorney Heads Safety Council

WILLIAM S. WALKER, assistant U. S. district attorney, recently was elected president of the Jacksonville, Fla., Safety Council. Mr. Walker has been chairman of the Public Safety committee of the Junior Chamber of Commerce and has been a member of the Safety Council board for some time. The new slate of officers was installed December 21. Ned H. Dearborn, who was scheduled to be the speaker at the annual dinner and installation, became a storm

"casualty" when his plane—and all others en route to Jacksonville—was grounded in Atlanta and he could not continue the trip.

A Child Safety Record

Just before the recent Christmas holidays the Greater Grand Rapids Safety Council announced that the city has just completed 17½ years without a school child being killed in traffic going to or from school. It was good news for parents in Grand Rapids—and it was a tribute to the efforts of the Police Department, the schools and last but not least, the Greater Grand Rapids Safety Council. . . . Between December 10 and 22, the "Traffic Squad" of Grand Rapids, affiliated with the local council, distributed approximately 10,000 cards to pedestrians, warning of holiday dangers.

Swenson Heads Jaycees

ELMER S. SWENSON, manager of the Sioux City Safety Council, (Ia.) was recently honored with the presidency of the local Junior Chamber of Commerce. A busy year for Mr. Swenson is predicted, for in addition to his full-time job as assistant sales manager of Roberts Dairy, he successfully directs the work of the Sioux City Safety Council after hours and on week ends.

Ben Garvin Honored

H. BEN GARVIN, manager of the Safety Division of the Automobile Club of Rhode Island, was elected to the presidency of the Providence Kiwanis Club on November 7. In addition to his safety duties, Garvin has been active in civic affairs in the Providence area during recent years.

—To page 80

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- Carefully tested for light transmission and filtering quality
- Trade-marked with exact shade number
- Inspected for surface uniformity and finish
- Conforms to all Federal Specifications for gas and arc welding
- Fits all standard types of goggles and helmets


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Dependable Products Since 1870



keeps You on the safe side



WILLSON Eye Protection For Gas and Arc Welding



Welding Helmet No. 330S

Rivet reinforced for heavy duty; deeply cupped for ample ventilation.



Flip-Front Helmet No. 60S

For quick inspection of work; one-piece, durable fibre shell.



Lightweight Helmet No. 510

Fibre shell fabricated in one piece, extends under chin for added protection.



Welding Handshield No. 8

One piece shell; light weight and proper balance minimize fatigue.



Chip-Weld Goggle No. DC53

Weld lens lifts up; leaves clear Super-Tough® lens in place for chipping and inspection.



Flash Goggle No. F350L

Spectacle type, with Willsonite Super-Tough lenses; leather bridge curtain.



Cover-All* Goggle No. CW60

With adjustable leather nose bridge; ample room for prescription spectacles.



Fibre Spectacle No. 30

For frontal protection during inspection, light gas welding, furnace work or boiler observation.

More than 300 Safety Devices Carry This Trademark

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Call your **WILLSON** distributor for complete Eye and Respiratory Safety Service

ALBUQUERQUE, N. MEX.—Hendrie & Bolthoff Co.

ATLANTA, GA.—Fulton Supply Co.

BALTIMORE, MD.—Carey Mach. & Sup. Co.

BIRMINGHAM, ALA.—

Safety Equipment & Supply Co.

BOSTON, MASS.—Carter, Wood & Sanderson Co.

BUFFALO, N. Y.—American Alfarco Co.

BUTTE, MONT.—Montana Hardware Co.

CASPER, WYO.—Casper Supply Co.

CHARLESTON, S.C.—Cameron & Barkley Co.

CHARLESTON, W. VA.—

Safety First Supply Co.

CHATTANOOGA, TENN.—C. D. Genter Co.

CHICAGO, ILL.—Protective Equipment Co.

CINCINNATI, OHIO—The E. A. Kinsey Co.

CLEVELAND, OHIO—Safety Service Supply Co.

COLUMBUS, OHIO—The E. A. Kinsey Co.

DALLAS, TEXAS—Engineering Supply Co.

DAYTON, OHIO—The E. A. Kinsey Co.

DEADWOOD, S. DAK.—

Hendrie & Bolthoff Co.

DENVER, COLO.—Hendrie & Bolthoff Co.

DETROIT, MICH.—

The Chas. A. Stranier Co.

EL PASO, TEX.—E. D. Bullard Co.

GRAND RAPIDS, MICH.—F. Ranville Co.

GREENSBORO, N. C.—Smith-Courtney Co.

GLENDALE, CALIF.—Carolina Supply Co.

HICKORY, N. C.—Smith-Courtney Co.

HOUSTON, TEXAS—

Allied Safety Equipment, Inc.

INDIANAPOLIS, IND.—The E. A. Kinsey Co.

JACKSONVILLE, FLA.—

Cameron & Barkley Co.

KALAMAZOO, MICH.—Safety Services Inc.

KANSAS CITY, KANS.—

K. Stone Supply Co.

LOS ANGELES, CALIF.—E. D. Bullard Co.

LOUISVILLE, KY.—

Neill-LaVelle Supply Co., Inc.

Orr Safety Equipment Co.

MEMPHIS, TENN.—J. E. Dilworth Co.

Miami, FLA.—Cameron & Barkley Co.

MILWAUKEE, WIS.—

Protective Equipment, Inc.

MUSKEGON, MICH.—Factory Supply Co.

NEWBURGH, N. Y.—W. L. Smith Co.

NEW ORLEANS, LA.—

Wardwell's Light & Co., Ltd.

NEW YORK, N. Y.—W. S. Wilson Corp.

OKLAHOMA CITY, OKLA.—

Hart Industrial Supply Co.

OMAHA, NEBR.—

Interstate Machinery & Supply Co.

ORLANDO, FLA.—Cameron & Barkley Co.

PHILADELPHIA, PA.—

Industrial Products Co.

PITTSBURGH, PA.—Safety First Supply Co.

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PROVIDENCE, R. I.—James E. Tierney

RICHMOND, VA.—Smith-Courtney Co.

ST. LOUIS, MO.—Siglo, Incorporated

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Farwell, Ozman, Kirk & Co.

SALT LAKE CITY, UTAH—

Industrial Supply Co., Inc.

SAN FRANCISCO, CALIF.—E. D. Bullard Co.

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SCRANTON, PA.—L. B. Potter Co.

SEATTLE, WASH.—J. E. Haselline & Co.

SPOKANE, WASH.—E. Haselline & Co.

SPRINGFIELD, MASS.—Cameron & Barkley Co.

SYRACUSE, N. Y.—Syracuse Supply Co.

TACOMA, WASH.—J. E. Haselline & Co.

TAMPA, FLA.—Cameron & Barkley Co.

TOLEDO, OHIO—Safety First Supply Co.

TROY, N. Y.—The Troy Belting & Supply Co.

TULSA, OKLA.—

Krisman Industrial Supply Co.

CANADA

SAFETY SUPPLY COMPANY

Toronto
Montreal
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Kirkland Lake

Foot Gripping Power on Your Floors

with

Ves-Cote FLOOR WAX

ANTI-SLIP PROTECTION



When you step on Ves-Cote, the weight of your foot causes millions of "Ludox" colloidal silica spheres into the wax particles, providing superior gripping power. This way, Ves-Cote gives greater slip protection.

One sure way to reduce falls caused by slippery floors . . . is to finish your floors with Ves-Cote.

There is a reason: Ves-Cote contains "Ludox"*, DuPont's new colloidal silica. These millions of tiny "Ludox" particles—integral parts of Ves-Cote—act as "stoppers" whenever a shoe touches them . . . actually grip the shoe with each step.

But, safety isn't the only feature of Ves-Cote: in addition, it dries to a high lustre, is long wearing, water resistant and easy to apply.

With Ves-Cote, you can have eye-pleasing floors that are *safe* to walk on . . . try Ves-Cote and the results will convince you.

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Have your Vestal representative demonstrate VES-COTE for me.
 Send me a FREE copy of FLOOR FACTS—A guide for treatment and maintenance of all types of floors.

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Industrial Health

Abstracts of current literature on Industrial

Hygiene, Medicine, and Nursing

By F. A. VAN ATTA, Industrial Department, NSC

Crop Dusting

Health Hazards Associated with the Use of Airplanes for Dusting Crops with Parathion by Fred R. Ingram. The American Industrial Hygiene Association Quarterly 12:165-170 (December, 1951).

A GREAT DEAL of spreading of insecticides for the control of agricultural pests is now being done by spraying or dusting from aircraft. Both fixed-wing planes and helicopters are used but most of this work in California is done by fixed-wing aircraft. This investigation by the Bureau of Adult Health of the California State Department of Public Health was intended to determine, if possible, how serious the exposure to pilots and laborers might be in the dusting of agricultural crops with parathion containing insecticidal dusts.

In this work both the pilot and the laborer worked at loading the insecticidal dust into the airplane and the pilot is exposed more or less during the dusting both because some of the dust gets into the cockpit during the loading and because the dust hopper is normally in front of the cockpit so that there is some leakage back during the actual spreading.

Air samples were taken in the cockpit during dusting operations and also with both pilots and laborers during loading of the dust hoppers. The samples were not very indicative of the actual exposure of any of the people involved since both the pilots and the laborers wore protective clothing and canister gas masks and the samples were taken outside of the masks.

Blood choline esterase activity levels were determined on both

pilots and laborers. At the end of the season which extended from June 23 to August 30, 1950 records were available on ten pilots and three laborers who had worked throughout the season. Nine of the pilots showed no symptoms and no appreciable reduction in blood choline esterase activity. The tenth pilot showed a sharp drop in choline esterase activity at one point and also physical signs typical of organic phosphorus compound poisoning. The same disappeared on his discontinuing the dusting with parathion for some time.

Water Contamination By Chromium Wastes

Underground water contamination by chromium wastes, Nassau County, N. Y. finds disposal through leaching pits the cause; waste treatment the correction. By Herbert W. Davids and Maxine Lieber. Water and Sewage Works 98:528-534 (December, 1951).

NASSAU COUNTY and adjoining Suffolk County have many aircraft plants and in many of these considerable quantities of chromic acid are used for the anodizing of aluminum parts. The chromium is not used up in the anodizing but is disposed of when the solution becomes sufficiently contaminated with aluminum that it no longer works well as an anodizing bath. It has been customary to dispose of these waste solutions by dumping them into a dry well near the plant. From this they can naturally seep into the ground water around the plant and produce contamination.

There is little information on ground water contamination by chromium and even less on the physiological effect of the chromium contaminant in the water.

The United States Public Health Service Drinking Water Standards of 1946 limit the concentration of hexavalent chromium in drinking water to 0.05 ppm. or less. If this is taken as a standard a moderate-sized plant which sends the equivalent of 100 lbs. of chromic acid per day to waste would be capable of contaminating 1,660,000 cubic feet of water to the permissible limit, which would represent a sheet of ground water 100 feet deep and almost 20 miles wide moving in the direction of ground water flow.

Steps to get the chromium waste water treated before being discharged to the ground water was started in January 1948 and treatment plants went into operation at all of the aircraft installations in late 1948 and 1949. The treatment consists in reducing the chromic acid to the trivalent state with either ferrous sulfate or sodium bisulphite and then precipitating the chromium with milk of lime. These plants have now been in operation for approximately two years and produce effluence containing 0.01 ppm. of hexavalent chromium and 0.5 ppm. of total chromium.

Psychology and Performance

The Bearing of Experimental Psychology upon Human Skilled Performance by Sir Frederic Bartlett. The British Journal of Industrial Medicine 8:209-217 (October, 1951).

THE PSYCHOLOGY UNITS of the University of Cambridge have been working intensively for the past 15 years on the problem of skilled work reactions. A special unit for research in applied psychology sponsored by the British Medical Research Council was established in 1944 as part of this work and another specialized unit for research in aging was established two years later partly upon funds supplied by the Rockefeller Foundation. The original impetus for this work was the necessity for investigation of the fatigue of aircraft pilots. The customary units

—To page 67

*“... helping to keep
the business cycle
on an even keel . . .”*



HARRY B. HIGGINS
President, Pittsburgh Plate Glass Company

“The employees of Pittsburgh Plate Glass Company since 1946, have purchased \$9,488,510 in United States Savings Bonds through the Payroll Savings Plan. This accumulation of assets will be of inestimable value in helping to keep the business cycle on an even keel by maintaining purchasing power for the future.”

Payroll Savings—the plan that protects—pays the employer triple benefits:

- it makes a good employee a better one—a serious saver with a definite plan for personal security.
- as enrollment on the plan goes to 60%, 70% employee participation, productivity increases, absenteeism decreases and accident records go down.
- and as Mr. Higgins points out, the systematic purchase of Defense Bonds through the Payroll Savings Plan is building a tremendous reserve of purchasing power.

Let's point up the third employer benefit with a few figures:

- On September 30, 1951, individuals held Series E Bonds totaling \$34.6 Billion—more than \$4.6 greater than on V-J Day.
- During the five calendar years (1946-1950) Defense Bonds sales provided:

—Cash to retire \$3 Billion A-D Savings Bonds (maturing Series).

—Cash to meet \$24 Billion redemptions of E, F and G Bonds.

—\$6 Billion (after providing cash for the payments enumerated above) that the U.S. Treasury could use to pay off bank-held debt.

And the figures are getting better every day—between January 1, 1951 and November 1, 1951, 1,200,000 employed men and women joined the Payroll Savings Plan.

If the employee participation on your Payroll Savings Plan is less than 60%, phone, wire or write to Savings Bond Division, U.S. Treasury Department, Suite 700, Washington Building, Washington, D.C. Your State Director will be glad to show you how you can participate in the triple benefits of the Payroll Savings Plan.

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NATIONAL SAFETY COUNCIL



THE ACCIDENT BAROMETER

Prepared by the Statistical Division, National Safety Council

ACCIDENTAL DEATHS in October totalled approximately 8,000, the same as in October, 1950. An increase in deaths from motor-vehicle accidents was offset by a decrease in deaths from home accidents. Fatalities resulting from occupational and public non-motor-vehicle accidents showed no change from October, 1950.

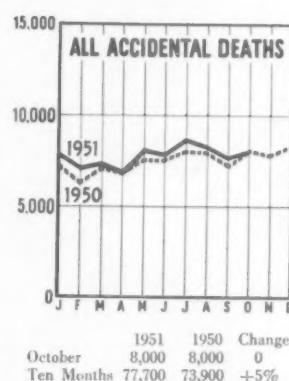
The total for ten months was 77,700, an increase of 5 per cent over the 1950 comparable total of 73,900. Most of the increase occurred in deaths from motor-vehicle accidents, but deaths from occupational and public non-motor-vehicle accidents also were more numerous than in 1950. Home accident fatalities showed little change from 1950.

Motor-Vehicle Deaths

The October total of motor-vehicle deaths was 3,760, an increase of 6 per cent over October, 1950. Compared to 1949, it was an increase of 21 per cent.

Deaths for the ten months totalled 30,300, an increase of 7 per cent over the 1950 total of 28,200. The ten-month death rate per 100,000,000 vehicle miles was 7.3, a reduction of 1 per cent from the 1950 comparable rate of 7.4.

Of the 46 states reporting for ten months, 9 had fewer deaths than in 1950, 2 showed no change, and 35 had more deaths. Reporting cities with populations over



	1951	1950	Change
October	8,000	8,000	0
Ten Months	77,700	73,900	+5%

10,000 showed a reduction of 2 per cent for October, but an increase of 3 per cent for the ten months.

Regional changes from 1950 in the ten-month death totals were:

North Atlantic	+ 6%
South Atlantic	+ 7%
North Central	+ 6%
South Central	+ 7%
Mountain	+ 11%
Pacific	+ 11%

Occupational Accidents

Deaths from occupational accidents numbered approximately 1,300, the same as in October, 1950. The ten-month total increased 7 per cent, from 12,900 in 1950 to 13,800 in 1951.

The October frequency rate per million man-hours in seven sec-

tional accident prevention contests conducted by the National Safety Council was 6.06, a reduction of 13 per cent from October, 1950. The ten-month rate was 6.63, a decrease of only 2 per cent. The October rate for community council inter-plant contests was 6.62, a reduction of 17 per cent from October, 1950. The ten-month rate was 9.13—no change from 1950.

Public Deaths

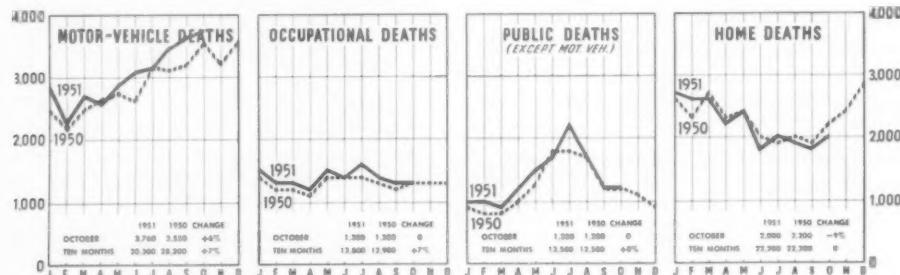
There were approximately 1,200 deaths from public non-motor-vehicle accidents in October, or no change from October, 1950.

The ten-month death total was 13,500, an increase of 8 per cent over 12,500 in 1950. There were moderate increases in deaths from falls, transportation accidents and firearms accidents, and a small increase in fatal drownings. However, deaths from burns showed a sizable decrease from 1950. All age groups had some increase with the largest change recorded for children under 5 years of age.

Home Deaths

October deaths from home accidents numbered approximately 2,000, a decrease of 200 deaths from October, 1950.

The January-October total was 22,200, about the same number as occurred during the same period of 1950. There was a moderate reduction in deaths from poisonings and a small decrease in deaths from firearms accidents. A small increase was recorded for fatal burns, while deaths from mechanical suffocation and falls showed no change from 1950.





The audience howled when the Ballerina fell flat on her dignity

INS reports an unusual performance by a famed ballet company in Detroit.

When members of the cast started sitting down suddenly, the audience suspected this was not in the script. But when the Prima Ballerina's dainty toes slid from under her and she landed smack on her dignity—the audience was convulsed.

The culprit?—freshly-laid linoleum on the stage, so highly polished that it was as slippery as a skating rink. Hardly a safe surface for dancing—or even walking.

SLIP-FALL ACCIDENTS are seldom funny. There's no humor in a broken bone. And there's no economy in lost man-hours, negligence suits and decreased production. That's why industrial plants, office buildings, schools, hospitals and institutions from coast to coast rely on the LEGGE SYSTEM of Safety Floor Maintenance.

Our Safety Engineers custom-tailor maintenance programs to your needs—give you floors that *shine without slipperiness*. And that's not all.

They teach your crews how to properly apply LEGGE Safety Products. Show you how to save 50% on your labor, 25% on your materials. One well-known institution cut its yearly maintenance budget from \$60,000 to \$40,000 with the LEGGE SYSTEM.

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New Award Plan

—From page 27

shall be made and given equal weight.

A final question was whether frequency or severity rates should be used as a basis for awards. The argument for using frequency rates is that the results of an accident are partly a matter of chance and that prevention of all accidents will include prevention of the more serious accidents. The argument for using severity rates is that certain common sources of accidents, such as machinery, vehicles, electricity, explosives and harmful substances, produce more than their share of serious accidents, and that special attention to those sources of serious injuries will be best measured by a severity rate. The Council has long recommended the use of both rates, since both have value. The new plan is based on this established viewpoint. A unit will be required to obtain meritorious achievement both in terms of all disabling injuries and in terms of serious injuries.

As mentioned above, all industrial members of the National Safety Council will soon receive detailed instructions for determining their eligibility for the various awards. These instructions will include tables permitting the calculation of statistical reliability of rate fluctuations, as well as all other necessary information and worksheets.

Completes Three-Month Latin America Tour

JAMES S. CARSON, vice-chairman of the Board of Colonial Trust Company, has returned to this country recently following a three-month trip through Latin America on behalf of the Inter-American Safety Council.

When visiting 16 cities in 12 countries Mr. Carson consulted with safety councils and committees affiliated with the parent body. He also had discussions with top government officials, leaders of business and industry and representatives of press and radio, to enlist their aid in securing wider and more effective dissemination

of safety throughout Latin America.

In the 13 years of its existence the Council has played an important part in helping to reduce the incidence of accidents and fatalities and in awakening in the people of Latin America an acute awareness of the benefits to be gained from positive, foresighted safety programs. The past decade, for instance, has seen reductions of better than 40 per cent in the frequency and severity rates of injuries in key industrial fields. Several of the leading airlines and industrial firms, as well as many individuals, have received awards from the Council for effective safety records and life-saving feats.

Mr. Carson has long been a well-known figure in international circles. He is Honorary President of The Mexico Pilgrims and Honorary President of the Pan American Society of the United States. His directorates include the National Foreign Trade Council, Avenue of the Americas Association, American Brazilian Association, Argentine-American Chamber of Commerce, Colombian-American Chamber of Commerce, Cuban Chamber of Commerce in the United States, Ecuadorean American Association, Mexican Chamber of Commerce in the United States, Peruvian American Association, and the Venezuelan Chamber of Commerce of the United States. Recently he was elected president of the United States-Austrian Chamber of Commerce.

Completes Seven Safe Years

Monsanto Chemical Company's Camden plant has announced completion of seven years of operations without a disabling injury.

W. J. Colvin, plant manager, announced that the last accident in the lampblack and bone ash plant occurred January 8, 1945. Since that time, the plant's 60 employees have logged more than three quarters of a million safe man-hours.

The plant has been the recipient of several safety awards from New Jersey manufacturing groups, the National Safety Council, and Liberty Mutual Insurance Company.

Full Neoprene coated, $1\frac{1}{2}$ " gauntlet.
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Books, Pamphlets and Periodicals of Interest to Safety Men

BOOKS AND PAMPHLETS

Atmospheric Pollution

Air Pollution Abatement Manual. Chapter 9. "Dust and Mist Collection." Published by Manufacturing Chemists' Association, 246 Woodward Bldg., Washington 25, D. C. 1951. 26 p. Price 25c. (Manual Sheet P-10.)

Chemicals

Acetic Acid. Published by Manufacturing Chemists' Association, 246 Woodward Bldg., Washington 25, D. C. 1951. Price 25c. (Chemical Safety Data Sheet SD-11.)

Aldrin Poisoning in Man. By Eugene J. Spiotta. (In AMA Archives of Industrial Hygiene and Occupational Medicine, Dec. 1951, p. 560.)

The Flammability Characteristics of the Cn H₂n-6 Aromatic Series. By M. G. Zabetakis and others. Published by U. S. Bureau of Mines, 1951, 9 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa. Free. (Report of Investigation 4824.)

Organization

How to Prevent Accidents in the Plant. Published by Industrial Accident Prevention Association, 600 Bay Street, Toronto 2, Canada. 1951. 11 p. Single copy free.

Railroads

Accident Bulletin No. 119. Summary and Analysis of Accidents on Steam Railways in the United States subject to the Interstate Commerce Act. Published by Interstate Commerce Commission. 1951. 119 p. For sale by the Superintendent of Documents, Washington 25, D. C. Price 55c.

MAGAZINE ARTICLES

Alcoholism

Chronic Alcoholism as a Medical Problem in Industry. By S.

Charles Franco. (In Industrial Medicine and Surgery, Dec. 1951, p. 547.)

Chemicals

Chemical Experience with Exposure to Ethylene Amines. By Carl U. Dernehl. (In Industrial Medicine and Surgery, Dec. 1951, p. 541.)

A Study of Exposure to Benzidine and Substituted Benzidines in Chemical Plants. By J. Wister Meigs and others. (In AMA Archives of Industrial Hygiene and Occupational Medicine, Dec. 1951, p. 533.)

Toxicity of Di-(Acetyl Cyno-ride). By Joseph F. Treou and others. (In AMA Archives of Industrial Hygiene and Occupational Medicine, Dec. 1951, p. 573.)

Civil Defense

Atomic Attack. Residual Radiation in Industrial Areas. By Philip Cook. (In the Engineering Journal, Nov. 1951, p. 1062.)

Construction

What Can I Do About Safety? By John A. Volpe. (In Construction Methods and Equipment, Dec. 1951, p. 52.)

Electricity

How to Detect Low-Voltage Grounds as They Occur. By A. B. Chafetz. (In Engineering and Mining Journal, Dec. 1951, p. 81.)

Fire Protection

Fire Protection in Electric Stations. By H. A. Bauman and W. E. Rossnagel. (In Electrical Engineering, Dec. 1951, p. 1040.)

Food Industry

Pattern for Safety. (In National Provisioner, Dec. 1, 1951, p. 12.)

Health

The Chylomicron Count as an Indicator of Phosphorus Poisoning. By R. B. L. Fleming and G. H. Collins. (In AMA Archives of

Industrial Hygiene and Occupational Medicine, Dec. 1951, p. 567.)

Platinosis. By A. Eaton Roberts. (In AMA Archives of Industrial Hygiene and Occupational Medicine, Dec. 1951, p. 549.)

Safety and Hygiene Measures in the Use of Industrial Solvents. By Charles Vanthier. (In Occupational Safety and Health, July-September 1951, p. 103.)

Mines

Teamwork Makes Mining Safer. (In Coal Age, Dec. 1951, p. 91.)

Nurses

Opportunities for Nurses in Industry in the United States and Abroad. By Sara P. Wagner. (In Industrial Medicine and Surgery, Dec. 1951, p. 551.)

Paper Industry

Safety in Caustic and Recovery Operations. By Fred O. Soughton and Gordon Rowlandson. (In Paper Industry, Dec. 1951, p. 1055.)

Six-Step Safety Program Results in Accident-Free Record at U. S. Gypsum's Ockmont Plant. (In Paper Industry, Dec. 1951, p. 1048.)

Resuscitation

Manual Resuscitation Methods Compared. (In Electric Light and Power, Dec. 1951, p. 94.)

Ventilation and Exhaust Systems

If You Really Want to Keep Your Air Clean. (In Factory Management and Maintenance, Dec. 1951, p. 88.)

Index

Index for the NATIONAL SAFETY NEWS, Vol. 64 (July through December, 1951) is now ready for distribution. It may be secured by writing to the National Safety Council Library, 425 North Michigan Avenue, Chicago 11, Ill.

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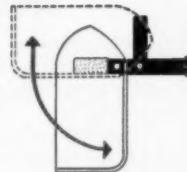


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VISOR LOCKS IN PLACE

The NEW patented visor position hinge locks visor in "raised" or "working" positions.



LIGHT and COMFORTABLE

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Personals

—From page 40

ficer in the Public Utilities Section of the National Safety Council, Chicago Safety Council, and other organizations, in addition to assuming leading roles in accident prevention committees within his company.

During the late '30's Ptolemy served Forest Park for four years as chairman of the Safety and Traffic Control Committee.

Obituary

A. D. CADDELL

ALBERT D. CADDELL, executive secretary of the American Society of Safety Engineers, died suddenly in Chicago, January 3. Born in Toronto, Ontario, May 20, 1888, Mr. Caddell was for many years identified with industry and safety in the state of Ohio.



A. D. Caddell

Engaged in the watch case manufacturing business, he later became secretary-manager of the Mansfield, Ohio, Manufacturers' Association and the Manufacturers' Association of Central Ohio. From 1934 to 1942 he was with the Industrial Commission of Ohio as executive secretary and special representative of the Division of Safety and Hygiene.

During World War II he served as safety director of the Columbus Plant, Curtiss-Wright Aircraft Corp., coming to the National

Safety Council from that organization.

When the ASSE was re-established as an independent organization in October 1947, Mr. Caddell was elected its secretary and managing director. In this capacity he had direct contact with the 53 chapters within the United States, Canada and Hawaii, and a large membership in other countries throughout the world. He was editor of *Engineering for Safety* and a member of the President's Industrial Conference.

Mr. Caddell is survived by his widow, two sons and a daughter.

Labels Condemn Unsafe Containers

THIS CONTAINER IS UNSAFE

Never store ashes and rubbish in the same container. Use only a galvanized steel or other metal can for ashes. Use a separate covered metal can or barrel for rubbish.

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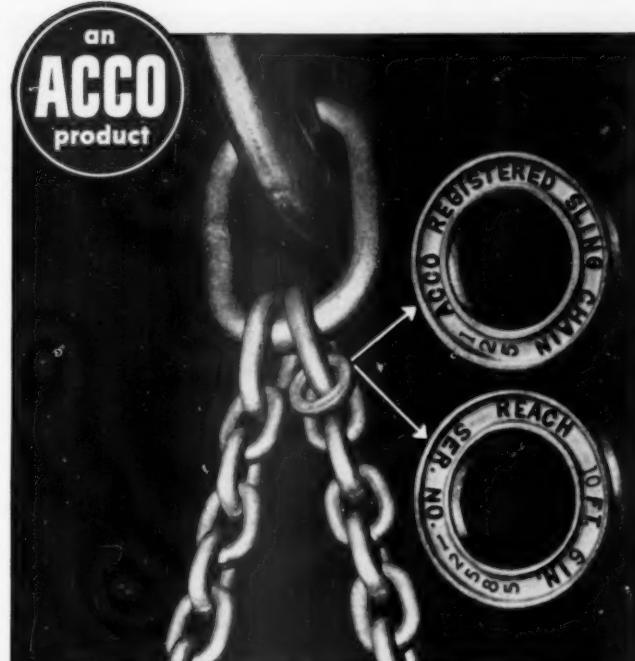
In cooperation with the National Fire Protection Association, the Galvanized Ware Manufacturers Council is offering fire departments and fire safety inspectors free quantities of red labels for condemning flammable refuse containers.

The label, approximately playing card size, is gummed on one side so that it may be easily affixed to containers without metal covers, to cardboard and wooden boxes. It is headed "This Container Is Unsafe" and points out that ashes and rubbish should be stored separately in covered metal rubbish cans.

Fire safety inspectors interested in obtaining free quantities of the label are invited to write to the Galvanized Ware Manufacturers Council, 221 North La Salle Street, Chicago 1.

Trouble teaches us two things—who our real friends are and who have been waiting to catch us bent over at the right angle.

A stalemate has been defined as a husband who keeps telling the same jokes.—*The Houghton Line*.



a Sign of Safety

• The identification ring you find on every ACCO Registered Sling Chain is your sign of safety. It's your guarantee of quality. It makes it easy for you to select the correct . . . safe . . . sling for each lift.

You can get ACCO Registered Sling Chains in the type, material, and size best suited for your work. No better sling chains are made. See your AMERICAN CHAIN distributor or write for Catalog DH-314.



Panorama of a Safe Plant

(From page 19)

eration. All are incidental, but they are important. They are all part of the over-all machine and meshed thereto.

Look more closely at the structure. Note the overhead trusses carrying not only the sheltering roof but the myriad conveyors that serve the machines. That structure must be statically able to carry those loads safely, with a little extra to provide for that flexibility in layout and process which is a sure sign of progress. Operations are never static.

Note the lighting system which blankets the entire interior with a high level of light. Do you feel confined because you see daylight only in the distance through the sidewalls? There are no monitors in this building, and yet light is good, ventilation is adequate, fumes of process are absent.

This appears to be a good place to work. It is far removed from the dingy, ill-lighted, fume-filled factories of not so long ago. Now the workman can see his work without eye strain. He can breathe air which is not contaminated with grinding dust or process exhaust, because these are removed at the source. Clean outside air is furnished in quantity to replace the contaminated air.

Do you see those openings through the roof? They are for power operated fans to bring in the fresh air. There is another opening in the next bay. That fan is running backward, to throw the contaminated and hot air under the roof outside. These developments did not occur automatically. They are the result of much study and research.

Not so long ago, we made maximum use of daylight in lighting our factory buildings. To do this, we provided monitors, or sawtooth roof construction, to permit daylight to enter the factory in such a manner that a reasonably level line of daylight illumination might be achieved. This line of illumina-

tion was never actually level; it was always higher in some locations than in others.

When the sun was shining brightly, peaks of illumination were too high. So we used heat-resisting glass on the sunny sides, thereby turning back some of the heat of the sun, but we turned back a good percentage of light as well.

When the sun was hidden by clouds, the peaks of illumination were too low. And even though you were able to achieve a reasonably level line of daylight illumination in the vacant factory, this achievement was disrupted when manufacturing equipment was installed.

As a consequence, additional lighting at the machine was imperative. Then, too, with a second or third shift, to which daylight was no longer available, the over-all lighting system needed to be adequate for those shifts. As a result, the level of artificial lighting requirements has been constantly rising. Formerly we provided a maximum of approximately 20 foot candles of artificial general illumination; the minimum today

is 30 foot candles or more in factories, and considerably above that in offices and in engineering sections.

There has been a definite revolution in the design of structures during and subsequent to World War II. This revolution has been occasioned partly by the suggestions of labor, which has required a higher level of constant light than daylight can provide. This, together with a sympathetic understanding by management, was instrumental in providing the more adequate lighting systems we have in our factories today.

It was also the result of security measures which required factories making war materials to be "blacked out," something manifestly impossible with monitor type construction unless the primary function of the monitor, that of providing daylight, is eliminated.

One further reason for monitors was the natural ventilation which they afforded. But here, too, necessity became the mother of invention. This function of monitors could not be used in a "blacked out" factory. True, complete ventilation systems have been installed for the required air changes necessary for health and comfort without benefit of natural ventilation through monitors. But this



EMPLOYEE ENTRANCE at large aircraft plant. Loading platforms connected with overhead bridges by stairs and ramps permit movement of large numbers of employees from buses with comparative safety and protection from weather. Pedestrian and vehicular traffic are separated. (Gaudreau, Rimbach & Associates)

installation was costly to install and operate, and costlier still to alter to comply with the changes constantly being made in process exhaust and the makeup air to replace it.

The individual supply and exhaust units were developed to supply this need. These can be so located and so proportioned to balance supply against exhaust to provide proper air movement within the plant. And, if, as often happens, the process exhaust is extensively increased, the makeup air supplied can be concentrated within those areas simply by interchanging supply units for exhaust units, both of which are of the same size.

The result has been that the expense of monitor type construction has been eliminated, the maintenance of sash in monitors has been eliminated, and the system of high constant level of artificial light and controlled system of ventilation to meet the flexible needs of constantly changing production has been substituted in a great many factory buildings.

How, you may ask, does all this affect safety? Its effect is intangible and yet important. Anything provided within a plant for better seeing, for better breathing, and which prevents fatigue is in the interest of safety. And being in the interest of safety first, it is definitely in the interest of efficiency, in the interest of lower costs, in the interest of continuing wages to labor, in the interest of profits.

Do you notice the painting scheme used in this factory? Why, the ceiling is painted green, the walls are green! What has happened to the standard mill gloss white with the dark dado along the wall?

Painting has never been considered high on the list of safety requirements, but it is assuming greater importance. Special painting of hazardous areas, of machinery and equipment has, however, normally assumed a high place in precautionary measures. Marking or special painting of piping for ease of identification has likewise been done as a usual provision. Only recently, however, has attention been directed to the effect of interior painting on over-

"Bill's feeling better now... thanks to our Scott"



Type B—illustrated above, with carrying case.

Type A—for fixed installation.



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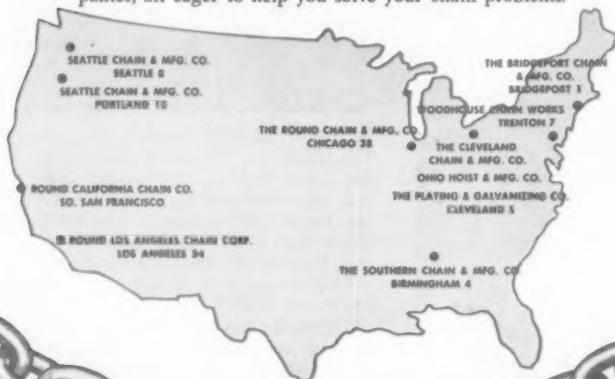
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The nationwide Round organization is made up of many men like Frank Diel and his associates . . . experienced, capable chain men who are respected throughout the industry. Practical chain men have been at the head of each Round firm since the first of the companies was founded in 1869. Today there are ten Round Chain Companies, all eager to help you solve your chain problems.



all personal comfort, particularly eye comfort.

The old established custom of applying gloss mill white to all interior surfaces has been displaced by "eye comfort" painting which simulates the comfort we obtain by viewing nature; the foliage, the sky and the horizon. Now many industrial plants are painted in nature's own pattern, ranging from the light blue or green of the zenith through the darker blue or green to the dark green of the horizon. This, too, contributes to safety.

Well, we've walked a long way up one aisle and down another, noting men at work and machines at work. You're getting tired. But let me tell you something. You would be far more tired, and the employees who stand at their machines would be a lot more tired, if it were not for the resilient floor finishes instead of the hard, unyielding and uncushioned surfaces. Proper floor finishes also contribute to safety.

Our tour is only just begun. You haven't yet seen the system of electrical lines, of water lines, of waste lines, and the many utilities that are necessary for the operation of all these machines. We'll take a brief rest for lunch and then resume.

Let us take a quick peek at the kitchen. Clean? Sure it's clean and capable of being kept so because of the easily cleanable surfaces of glazed tile walls, quarry tile floors, not to mention the stainless steel fixtures. The food is good because it is prepared under ideal conditions of sanitation.

The cafeteria? Air conditioned, of course. Glazed tile walls, asphalt tile floors, acoustic ceilings make up a place where the employee may relax in comfort, and which can be kept clean. Safety—sure! Safety of health is important. As a matter of fact, during rationing, this was the place to eat and many took advantage of it to eat three meals a day.

I am now going to show you several locations and operations within this building where we normally would have no business to go. First to the painting department, where you see men with

—To page 70

Keep him on the job!



Formula #99 Antiseptic Soap combats dermatitis and infections, cuts absenteeism

Millions of workers come into daily contact with such sources of occupational dermatitis as cutting oils, solvents, abrasives, acids, alkalis, waxes, etc. In addition, workers frequently suffer minor cuts that are often a source of skin infection.

Industrial dermatitis accounts for more than 50% of all occupational diseases, as shown by figures from the Bureaus of Labor Statistics. Compensation paid for dermatitis disability runs into millions of dollars annually. To help combat this serious health problem—and to overcome the tremendous loss of man-hours that results—Armour has developed Formula #99 Powdered Antiseptic Soap especially for industrial use.

The use of Formula #99 Powdered Antiseptic Soap in washroom dispensers offers an extremely effective and economical method of protecting workers. Its antiseptic agent (Hexachlorophene) maintains an exceedingly low bacterial count on the skin of the hands and forearms—and its antiseptic action increases with regular use.

Formula #99 Antiseptic Soap is also available in liquid form.
Write today for more information on Armour's Antiseptic Soaps.

Please send me:

- "Antiseptic Soaps for Industrial Use," with actual industrial studies.
- Formula #99 Powdered Antiseptic Soap sample.
- Formula #99 Liquid Antiseptic Soap sample.

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FREE SAMPLE

Try "Safety-Walk" yourself! Easy to apply . . . strip off liner and press in place. For free sample and complete information write: Minnesota Mining & Manufacturing Company, Dept. *Non-Slip*, St. Paul 6, Minnesota.



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COMING EVENTS

In the Field of Safety

Mar. 4, Hamilton, Ohio

Seventh All-Day Butler County Safety Conference presented by Middletown and Hamilton Safety Councils. (Moose Auditorium). Russ Hicks, executive director, Anthony Wayne Hotel, Hamilton, or Paul E. Wilson, director, Middletown Safety Council, 101 N. Broad St., Middletown.

Mar. 12, Akron, Ohio

Ninth Greater Akron Safety Conference. (Mayflower Hotel). T. J. Cain, general chairman, Akron Safety Council, Chamber of Commerce, Ohio Building, Akron 8, Ohio.

Mar. 17-18, Boston

Thirty-first Annual Massachusetts Safety Conference and Exposition. (Hotel Statler). Edgar F. Copell, president, Massachusetts Safety Council, 31 State St., Boston.

Apr. 1-4, New York

Twenty-second Annual Convention, Greater New York Safety Council, (Hotel Statler). Paul F. Stricker, executive vice-president, 60 E. 42nd St., New York 17, N. Y.

Apr. 7-10, Detroit, Mich.

Twenty-second Annual Meeting, Michigan Safety Conference. (Hotel Statler). Frederick W. Krupp, executive secretary, 174 East Atwater Street, Detroit 26, Mich.

Apr. 9-10, Louisville, Ky.

Seventh Statewide Safety Conference and Exhibit. (Kentucky and Seelbach Hotels). Estel Hack, managing director, Louisville Safety Council, Speed Bldg., Louisville 2, Ky.

Apr. 15-17, Columbus, Ohio

All-Ohio Safety Conference, James H. Fluker, superintendent, Division of Safety and Hygiene, Industrial Commission of Ohio, Columbus 15, Ohio.

Apr. 15-17, Buffalo, N. Y.

Twelfth Western New York Safety Conference and Exhibit. (Statler Hotel). Earl L. Hubbard, 150 Warren Ave., Kenmore, N. Y.

Apr. 16-18, Charleston, W. Va.

Eighteenth Annual West Virginia Safety Conference. (Daniel Boone Hotel). E. G. Volz, general chairman, c/o Monsanto Chemical Corp., Nitro, W. Va.

Apr. 21-22, Toronto, Ont.

Industrial Accident Prevention Association, Annual Conference. (Royal York Hotel). R. G. D. Anderson, gen-

eral manager, Industrial Accident Prevention Associations, 600 Bay St., Toronto 2, Ont.

Apr. 22-23, Fort Wayne, Ind.

Ninth Annual Northeastern Indiana Safety Conference and Exhibit. Ivan A. Martin, manager, Safety Council, Chamber of Commerce, Fort Wayne 2, Ind.

Apr. 23, Bridgeport, Conn.

Seventh Annual Connecticut Industrial Safety Conference. (Hotel Stratfield). A. M. Addison, manager, Connecticut Safety Society, c/o Connecticut State Highway Dept., Hartford, Conn.

May 4-6, Asheville, N. C.

Twenty-second Annual North Carolina State-wide Industrial Safety Conference. (George Vanderbilt Hotel). H. S. Baucom, safety director, North Carolina Industrial Commission, Raleigh, N. C.

May 6-8, Chicago

29th Annual Midwest Safety Show. (Congress Hotel). Joseph F. Stech, Manager, Greater Chicago Safety Council, Suite 806, 10 N. Clark St., Chicago 2.

May 6, Easton, Pa.

Twenty-fifth Annual Eastern Pennsylvania Safety Conference. Hotel Easton. Harry C. Woods, executive secretary, Lehigh Valley Safety Council, 602 E. Third St., Bethlehem, Pa.

May 8-9, Baltimore, Md.

Statewide Safety-Health Conference and Exhibit. (Lord Baltimore Hotel). Joseph A. Haller, director of safety, State Industrial Accident Commission, Equitable Bldg., Baltimore 2, Md.

May 15-17, Richmond, Va.

Eighteenth Annual Virginia State-Wide Safety Conference. (Jefferson Hotel). William M. Myers, executive secretary, Richmond Safety Council, 803½ E. Main St., Richmond 19, Va.

May 22-23, Duluth, Minn.

Twenty-eighth Annual Conference, Lake Superior Mines Safety Council. (Hotel Duluth). John A. Johnson, chief, Accident Prevention and Health Division, Region V, U. S. Bureau of Mines, 18 Federal Bldg., Duluth, Minn.

May 27-29, St. Louis, Mo.

Central States Safety Conference. (Hotel Jefferson). Reyburn Hoffman, secretary-manager, Safety Council of Greater St. Louis, Room 820, 511 Locust St., St. Louis 1, Mo.

Sept. 16-18, Cleveland, Ohio

Fourteenth Annual Ohio State Safety Conference. (Hotel Carter). Carl L. Smith, secretary-treasurer, Ohio State Safety Council, 2073 E. 9th St., Cleveland 15, Ohio.

Oct. 20-24, Chicago

Fortieth National Safety Congress and Exposition. (Conrad Hilton Hotel). R. L. Forney, general secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

Industrial Health

—From page 52

of measurement used by classical psychology seem to have no relation to either the ability to fly an airplane or drive a vehicle or to the deterioration of that ability with long continued operation.

They studied the total performance of aircraft pilots in a simulated cockpit to find out the extent and nature of the deterioration in performance with long spells of flying. They quickly discovered that the absolute time taken to perform any operation or the classical reaction time had extremely little to do with the over-all performance of the flying operation. They also found that there was a considerable difference between what a fatigued individual could do and what he would do. In other words, the pilot was quite capable of correcting for minor variations in his instruments but as he became more fatigued he had more tendency to ignore the minor variations and to correct

only when the variations became larger. This was not a conscious reaction as the pilot would maintain that he was carrying on at the same level of competence at all times.

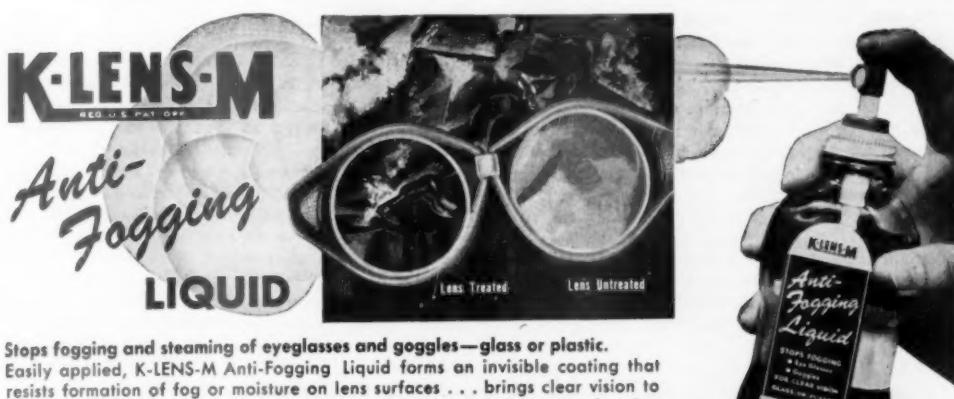
In the post-war period this same type of experiment has been carried on in a somewhat more generalized way with the intention of finding out the key elements in skilled performance and attempting to measure what constitutes skill. The most general finding is that the important thing in skilled performance is not the rate of performance of any particular movement or the exceptional ability to perform any particular operation but the timing of the various operations involved so that they flow from one to the other without check or without hurrying.

In order to do this, it is quite apparent that the operator must time himself by the total display of signals which indicate the various phases of process or operation which is being carried on and it is apparent, therefore, that the de-

sign of this display for various control operations is a matter of vital importance. The ability to readily and rapidly carry out a skilled operation may be markedly affected by the location, size, shape, number, direction and rate of change of the display signals.

Carrying out of skilled operations in a smooth manner generally depends upon anticipating the movements ahead of time and when the signals succeed one another rapidly in a single related stream the interpretations and anticipation may be two or three steps ahead of the action being carried out. This type of anticipation, of course, cannot deal with a situation in which there are two or more simultaneous signal streams requiring action. In such a situation there is a type of anticipation depending upon the perception of the order and recurrence of the signals which have been received in the past.

With a more complicated type of situation there seems to be a type of anticipation which depends



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upon a knowledge of when and where critical situations are likely to develop which will require action or decision.

Whatever the type of skilled behavior it is obvious that it can be carried on only within very definite limitations of speed and load. Speed in this sense being the over-all time required for the process and not reaction time and load being the number of signals or signal sources which must be dealt with in very rapid succession.

In ordinary industrial situations the reaction time and the time required to carry on operation are probably never such as to tax the maximum ability of the individual. The critical factor seems to be the change-over time or the time required to rest after one operation before the next is started. If this change-over time is either decreased or increased beyond certain definite limits the efficiency of the whole operation will be markedly deteriorated.

Very little is known about either incentive or motive in skilled operations. It seems, however, that if the operation is being carried on somewhere close to the highest efficiency an added incentive can do nothing to increase the rate except for very short-term spurts. Even less is known about motives but it does appear that for any organism there is a tendency to set itself for a certain rate of operation and that any attempt to go beyond that rate in either direction will be a source of trouble. The problem now is to determine what produces the set.

As a natural extension of this type of observation the changes of efficiency with increasing age have been studied at some length. The Cambridge studies both in the laboratory and the field show that difficulty with timing of skilled operations begins to appear in the late twenties and early thirties and that it is usually counteracted by a more deliberate and effective use of anticipation of what is to be done next. Over-all performance may even go on improving unless

there are drastic changes in the environment fairly frequently.

The greatest difficulty, from the forties onward seems to be the attempt to deal with novel clusters of signals in fairly skilled operations. There is as yet no information as to whether retraining will maintain the performance through the middle ages. It does appear that the signal display and the load assume greater and greater importance with increasing age. This may be because of the tendency to make more use of the second of the three main types of anticipation as one becomes older.

It is the feeling of the group studying these changes in skill with increasing age that the possibility of maintaining and even increasing skill to an advanced age looks better rather than worse as they study the changes in more detail.

Cremation Destroys Radioactive Wastes

CREMATION of radioactive wastes from the Knolls Atomic Power Laboratory near Schenectady, N. Y., reduces their volume about 50 times and discharges non-radioactive gases into the atmosphere. Dr. Herbert H. Simon, General Electric Company scientist, told the recent 118th meeting of the American Association for the Advancement of Science at Philadelphia.

Dr. Simon is head of the waste process studies unit of the laboratory which is operated by General Electric for the Atomic Energy Commission.

Because the laboratory is near a populated area, no detectable radioactivity is discharged into the ground water or into the nearby Mohawk River. Liquid wastes are handled through an elaborate plant treating 3,000,000 gallons per year. First the liquid is distilled, and then redistilled if necessary, leaving radioactivity behind in a thick mud, or "slurry," made of the material which was dissolved or suspended in the original liquid.

Water distilled off, which is non-radioactive and of a high degree of purity, is discharged into the river.

The remaining mud is collected in stainless steel cans. This material represents about one three-hundredth the volume of the original liquid wastes.

In addition to liquids, the laboratory has a considerable amount of solid wastes. Those that are burnable are "cremated" in a cylindrical furnace.

To remove from chimney gases any solid smoke particles which may be radioactive, the gases are washed by a water spray and then filtered.

Final solid wastes are now temporarily stored in a special building. In the near future these stored wastes are to be shipped to a site in an unpopulated area where they can be stored above ground indefinitely with safety, Dr. Simon said.

Film Contest Deadline February 25

ENTRY BLANKS have been placed in the mail for the 1952 contest conducted by the National Committee on Films for Safety. This annual contest will include motion pictures and sound slidefilms produced or released during 1951, in the fields of occupational, traffic and transportation, home, and general safety.

Suitable awards are given to sponsors of outstanding films in each classification, as determined by the committee judges. There is no charge to contestants for entries.

Entry blanks must be received by February 25, 1952, at the headquarters of the National Committee on Films for Safety, 5th floor, 425 North Michigan Ave., Chicago 11, Illinois. Address William Englander, secretary, for contest forms or further information.

Do not resent growing old—many are denied the privilege.

Appointed Secretary of RISAC

MYRON D. MILLER has been appointed full-time secretary and safety code consultant of the Refrigeration Industry Safety Advisory Committee (RISAC), with offices at 155 East 44th Street, New York City. He succeeds the late Cyrus W. Miller.

Mr. Miller, born in Cleveland, Ohio, received his B.M.E. from Ohio State University in 1944, the Master of Public Administration degree from Wayne University in 1946, and obtained a working knowledge of law from evening studies at New York University.

His background includes experience in production work with the Navy, as Lieutenant (jg). His first assignment was in a high priority production project at the National Carbon Company, Winston-Salem, N. C. His second assignment was doing liaison between the Naval Ordnance Laboratory and Eastman Kodak Company.

For the last three years, Mr. Miller was a division manager with the Commerce and Industry Association of New York, Inc. His activities included organizing and staffing the Air Conditioning and Refrigeration Panel that has been working since December, 1950, on drafting a modern refrigeration code for New York City. This code is expected to be finished by this March and introduced in the City Council. It is based largely on the provisions of the *Safety Code for Mechanical Refrigeration (ASA-B9.1)*, as approved by the American Standards Association.

RISAC is sponsored jointly by representative groups of manufacturers of air conditioning and refrigeration equipment, including the Air Conditioning & Refrigerating Machinery Association, the Compressed Gas Association, Inc., the National Electrical Manufacturers Association and the Refrigeration Equipment Manufacturers Association.

Education and intelligence are not always on speaking terms.

A hypocrite is like a pin—points one way, heads the other.

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Tie a knot in a Tuffy Sling, then pull it tight with both hands and feet. See how flexible it is—and how it straightens out without damage. The secret is in the braided fabric construction—a patented Tuffy feature!

Scores of wires are stranded into 9 parts, then machine woven into an interlaced wire fabric entirely unlike conventional wire rope slings. Even cutting one of the 9 parts does not result in stranding. And eye splices develop up to 95% of the fabric strength.



11 Types of Tuffy Slings If none of the 11 factory packaged Tuffy Sling types exactly meet your needs, Union Wire Rope engineers will develop one that does. Tuffy Slings are proof-tested to twice safe working load. The safe working load is stamped on a metal band attached to each sling. If you have your own rigging loft, Tuffy braided fabric is available by the reel.

MAIL COUPON TODAY FOR YOUR FREE SLING

This special 3-foot sample is yours without cost so that you can prove to yourself the advantages of a Tuffy Sling. Just mail the coupon.



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Panorama of a Safe Plant

(From page 62)

safety masks spraying the finished products.

Douse that cigarette before you step in here! Booths are provided with water wash and blowers to absorb the excess paint fog. Adequate fresh air is provided to replace the exhaust. The room is on the outside of the building, and enclosed in a fire wall on three sides, entered only through self-closing doors.

In case of a fire in this area, the fusible links allow the doors to close, thus confining the fire within the area. How about the employees inside? See those doors adjacent to the fire doors? Pressure on the bar across the door opens it. That door is equipped with panic hardware which will let you out but will not permit unauthorized persons to get in.

There was a time when these man doors were not installed; codes did not require them, until it was found that the poor fellow inside didn't have a chance of budging the fire door once it had closed.

See the scored glass in the outside windows? In the event of explosion, the force vents itself through that easily breakable medium.

Let us look at the packaging and shipping department. Wood boxes, planks, shavings, etc., in this area. This fireproof building, constructed of incombustible steel, masonry and glass has become less fireproof because of the operations carried on in this area. And so we have this area and other similar areas provided with sprinkler protection so that in case a fire does start, this entire section will be automatically blanketed with water from the sprinkler heads.

Now that kind of fire protection is effective for fires of this type; it would be no protection at all for gasoline fires. Let me show you what we do where these volatile fuels are handled.

In nearly every plant, the opera-

tion requires tests, many of which involve the use of highly flammable fuels. Take, for example, airplane or automobile engines. They are all tested for performance. Assume, for the moment, that this plant is used for the production and assembly of airplane engines.

We should then have adjacent to the plant, but isolated therefrom insofar as possible, a test area consisting of a preparation area, where the engines are prepared for test, and a battery of test cells, in which the engine is mounted and given a thorough performance test.

Naturally, gasoline is required, a lot of gasoline. This gasoline is stored in a tank farm and piped through mains into the test cells. A great deal of hazard is involved here and every precaution is taken in the interests of safety, not only of structure but of personnel, because the danger of fire or explosion is always present.

The control rooms in which the test engineer observes the performance and reads that performance on a multitude of dials and

instruments are separated from the actual test cells with heavily reinforced concrete walls. The port holes and observation windows are of heavy bullet-proof glass.

We try to keep gasoline outside these control rooms, but you cannot keep it out of the test cell itself, and leaks may occur, fires may occur. Here normal sprinkler protection is inadequate. A gasoline fire needs to be blanketed with fog or carbon dioxide and such systems are installed. We go further than that.

Leaks may occur and be undetected until the fumes become concentrated enough to smell. The nose is a sensitive organ, but not sensitive enough; so we install fume detectors in strategic locations which can smell fumes at concentrations that your nose cannot detect; when these mechanical noses go into action and sound the alarm, there is still time to shut the engine down and get out.

It is of particular importance that gasoline lines in a building be exposed to constant inspection. Avoid basements and pits at all costs. These are the places where danger lurks.

Tired? Well, I won't ask you to go up to the roof area where the power substations with their



CONTROLLED CONDITIONS building as it appeared before completion of steel partitions and installation of equipment. Eighty foot spans with columns spaced 40 feet apart aid efficient layout. Air conditioning ducts, air diffusers, acoustic tile and individual as well as continuous fluorescent troffer units are all suspended from special troffer beams which span the 20 feet between roof trusses.

transformers and switchgear are located. High-voltage current is brought in to them, transformed, and sent through a network of conduits and wiring to the lighting system, to the power panels, to the bus duct for the operation of the many individual motors which drive the equipment.

The high-voltage substation is reached by a stair usually, but that stair and the door opening into the substation is for authorized personnel only. The same way with the heating units, the air supply units, the fan rooms; all of these are arranged so they may be serviced. Because they are in locations which are not always easily accessible, walkways and access platforms are provided for maintenance personnel.

Yet with all of our precautions in the design of plants and its coordination with layout of equipment and safety precautions, accidents will still occur. We are dealing with human beings, and the human element is not always predictable. The old boy may have been out late the night before, or he may not have slept well, or his wife may have bought a too expensive hat, making him less alert than he should be.

Every plant, therefore, will have within its bounds the requisite first-aid stations, and probably a hospital. How complete these facilities will be will depend upon size of plant, the proximity of other hospital facilities in the area, and other factors.

Civil Defense

In this article, you will note that I have touched only briefly on structural safety, which, of course, is all important and the factors for which vary for different locations. We can design structures which are safe against the generally known forces of nature, such as wind, snow, earthquake, frost, and the generally accepted hazards to structural safety which exist in various localities. I am not so sure that we have the answer to structural safety against forces of nature in the immature hands of man.

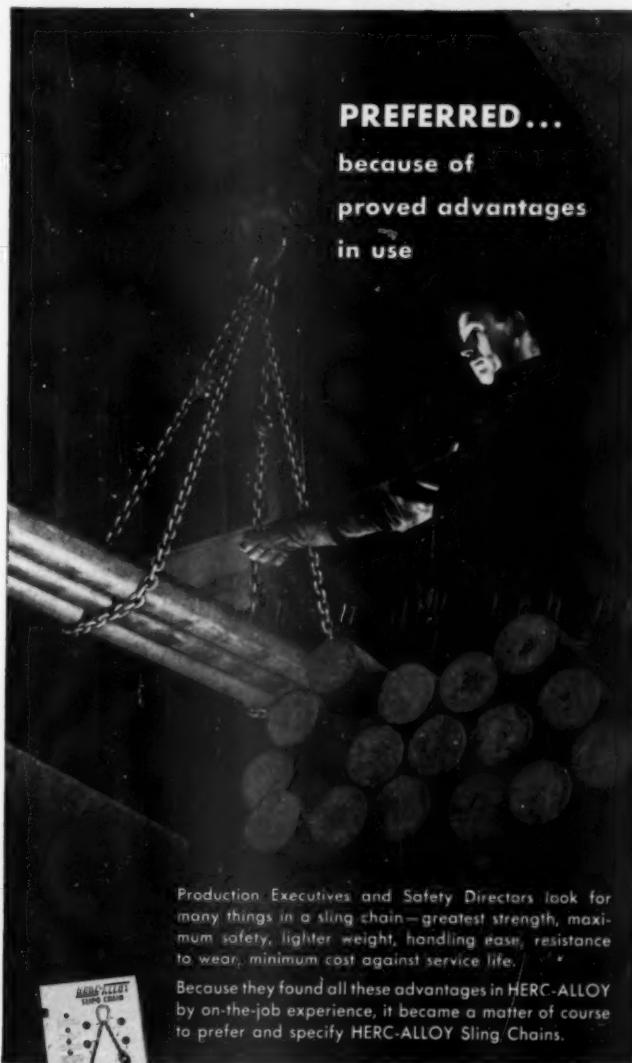
Bombing, particularly atomic bombing, produces forces which

—To page 85

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Streamlined Tigers

(From page 35)

development tests at Muroc. Prior to that time the British had already lost one man due to the same cause, and two additional fatalities (and a number of near misses) have since occurred.

Another RAF mechanic was killed in Britain about two years ago, and a year ago, in Stockholm, Sweden, a Swedish military plane was the source of the fourth death. Numerous experiments have been conducted by the RAF, the American Air Force and Navy Departments, and by aircraft manufacturers to determine the safe work space in front of an operating jet intake. On this point I must offer two definite cautions.

In the Swedish accident, the victim was walking at a safe distance from the operating engine intake when he slipped on ice on the apron and slid in the direction of the intake, whereupon the force of the air suction drew him forcibly against the opening of the compressor cover. This accident was a freak of nature, but it points up the fact that specifying safety areas in terms of some specific distance limitation is not the total answer.

The second point I wish to make in connection with the suction hazard deals with the size of the intake, the height of the intake from the work platform or apron, the velocity of the air movement in the immediate vicinity of the intake, and the speed at which the turbine is revolving. In other words, the safe distance, when once determined, for one engine, under one set of operating conditions, does not in any way establish a safe distance one must keep from all operating jet engine intakes under all conditions.

Word of mouth discussion of so-called safe work areas, or safety posters delineating safe areas, which are based on experience with one engine only under one set of working conditions, may in fact

result in an aggravated hazard through a false sense of security.

From the maintenance point of view, the suction hazard must consider injury to equipment as well as personnel injury. Jet engine intakes have all the characteristics of a high-powered vacuum cleaner. They have a tendency to remove tools, eye glasses, hats, or any other loose item which comes into their vicinity, including loose gravel and other items on the runway and aprons.

We have on file a report from one of our Air Force Fighter Wing stations in Germany, which indicates that inspection of 135 engines removed during one year revealed damage due to gravel entrance into the inlet ducts in 51 engines, over one-third of the total. Our Air Force engineers have been working on a screen guard design to be used on the plane inlet duct, during maintenance operations, or which can be closed when the plane is on the ground, but this still does not prevent scooping up an occasional pigeon in flight.

The Navy Department has recently conducted an extensive study on certain aspects of jet operation at their Patuxent Air Station, and their report indicates that the temperature hazard in the jet wake is serious only when the

engine is operating at low r.p.m. With higher settings the wake velocity is so great that even when an anthropometric dummy was impelled into the jet wake at a distance of only 3 feet from the tail pipe, it was hurled out of the wake area—a distance of 176 feet — without even scorching the clothing on the dummy.

To give some indication of the actual heat involved, in our F-80 aircraft, at the take-off speed of 11,500 revolutions per minute, at a distance of 75 feet from the tail pipe outlet, the exhaust temperature is 150 degrees F., and the velocity of the blast at 75 feet is about 80 miles per hour. This temperature and blast, of course, increase rapidly at closer distances to the tail pipe. So that a distance of 25 feet from the tail pipe, the temperature is 340 degrees, and the velocity of the blast is 225 miles per hour.

With these velocities and temperatures two additional problems are introduced. In the first place, high exhaust temperatures on taxiing and take-off may have a tendency to soften up any bituminous or asphalt surface, and any loose pebbles or dust in the wake of the exhaust will be impelled with great force in the opposite direction to the travel of the aircraft.

I might mention an incident at a recent National Air Meet. Three jet aircraft landed in front of the stands, and in order to give the audience a better view, the parking official waved them over in front of the stands and then indicated that they should swing around with the tail pipes pointing at the audience. Emergency measures prevented this from happening.

The subject of noise always comes up when we discuss jet hazards.

Sound levels on the order of 150 to 160 decibels, with frequency ranges still too high to measure in the ultra-sonic spectrum, are present in some jet engines, and we must add to these the high intensity sound incident to test pit operation.



Suffice to say, test pits should be located in an unpopulated area if possible, and the open end of the pits should be directed away from any inhabited or work area, particularly when round-the-clock maintenance operations are conducted. We have had complaints from people living as far as two miles away from test pit operations that they could not sleep because of the sound, which is particularly enhanced when the pitch is varied through changing of the r.p.m. of the engine.

We require all of our maintenance personnel to wear ear plugs at all times while in the immediate area during test operations, but we have not found it necessary to take any additional precautions beyond the use of these ear plugs, except periodic hearing tests.

Rocket Fuels

Now let us consider some of the problems peculiar to fuels. Rocket motors use either a dry fuel or a liquid fuel, but the significant fact in the rocket motors is that they must have in the propellant charge a self-contained oxygen supply to support combustion. The solid fuels include simple gun powder such as you find in a Fourth of July sky-rocket. Liquid fuels normally consist of an oxidizing agent and a chemical fuel.

The jet fuels have heretofore been primarily limited to petroleum products, and it is here that I should like to make a point of emphasis. I am sure that you all have heard that jet fuel is practically the same as kerosene. This concept is universal, and a year or two ago, it was generally correct. People in general considered the fuel as a fairly safe mixture.

Meanwhile, however, in order to increase the operating effectiveness and range of jet aircraft, it became necessary to "soup up" the specifications and a new fuel, known as AN-58 fuel, was introduced. As we became able to withstand higher temperatures through improvements in alloys and the development of a ceramic lining in the combustion chambers and exhaust ducts, we were able to further raise specifications for future jet fuels. Our new fuel is a close relative of gasoline with all of the explosive and fire

SANITARY WASHING FACILITIES

Are An Important Safety Factor

BRADLEY WASHFOUNTAINS

The Standard in Large and Small Plants Throughout the Nation

Modern facilities, good lighting, safety equipment, plus *sanitary washrooms* are all essential in maintaining high productive efficiency.

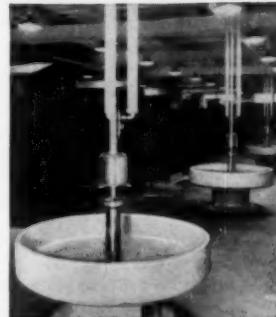
Year by year, for over 30 years, the use of *sanitary* Bradley Washfountains has been constantly extended because they help prevent skin afflictions, reduce maintenance, save water and speed wash-up time.

Fresh Running Water Supply Self-Draining Bowl

Up to 8 or more persons can wash simultaneously at a Bradley — each supplied with a fresh spray of running water which is carried off as it is used. Such facilities not only encourage proper washing but do it in the most sanitary manner. There is no collection of contaminating water, and with foot-control the hands need touch nothing but the water spray they are washed in.

Save Installation Time and Cost

Bradleys make big savings in installation costs because one Washfountain



No water waste. When men leave, water is cut off automatically.

And BUG-Washfountain
for the Smaller Wash-
rooms, First-Aid
Rooms, Cafeteria
Entrances, Lavatories

BRADLEY
washfountains

Distributed through Plumbing Wholesalers

provides for as many persons as 8 to 10 single-person washbasins with one-eighth to one-tenth the number of piping connections.

Your plant probably has Bradley Washfountains but with greater numbers of employees or the addition of women, more washing facilities may be needed now.

BRADLEY
WASHFOUNTAIN CO.,
2237 W. Michigan Street
Milwaukee 1, Wisconsin



Write today
for a copy
of Catalog
4781.

hazards involved.

This is a place where the development of a mental set, as the psychologists call it, has resulted in a lack of respect for a fuel which now will result in increasing the potential hazard.

This is one of the major fire hazards presently connected with the transportation, storage and issue of jet fuels. Of course there are numerous fire hazards incident to developing and testing new types of jet motors, but these are confined to a relatively restricted number of municipalities.

In the field of solid propellents for rockets the fire hazards are closely related to the handling of normal powder and explosives. It is in the field of liquid rocket fuels that the predominant fire and explosion hazards exist. As I mentioned earlier, rocket fuels have self-contained oxygen supply and can continuously support combustion in an oxygen-free atmosphere. Experimentation in the field of rocket motor development is widespread and new fuels are continually being considered.

Particular emphasis is being given mono-propellents and many of the fuels operate through the principle of spontaneous decomposition rather than through the use of chemical reaction. Obviously these fuel combinations such as red fuming nitric acid and aniline will explode upon contact.

Recently, at one of our experimental laboratories, one of our laboratory personnel was severely injured when a rocket motor using this combination was being fueled. The same copper servicing line was utilized to withdraw the two items from their storage containers, and a slight residue of one agent in the line came in contact with the other agent, causing an explosion which destroyed the entire apparatus and seriously injured one of the men. When you consider that this occurred as a result of the minute quantities contained in a small copper tube you can realize the fire and explosion hazard involved in a rocket installation firing rockets similar

in size to the World War II German V-2. I am able to mention only a few possible combinations of fuels as an indication of the type rocket fuels successfully utilized in the past. These are oxygen-alcohol, hydrogen peroxide alcohol, alcohol and liquid oxygen, acid aniline, and hydrazine and liquid oxygen.

In general these fuel combinations are volatile, flammable within certain limits, frequently chemically unstable, and occasionally they can be detonated by shock. Static electricity is always a severe hazard when these fuels are handled.

While speaking of static electricity, I should like to mention an occurrence in which static electricity played an important part, and an accident occurred in its true definition of "an unexpected occurrence," yet fortunately no injury was involved. One of our operators, while preparing to make a test run of a guided missile at our New Mexico test range, was connecting the firing circuit to the contact leads of the squib used to detonate the charge. He was standing on the platform of the lift truck, approximately 18 feet above the ground, and as he reached forward to complete the connection on the firing circuit, static electricity took over and fired the rocket right out of his hands. From such lessons we must make our safety plans.



"Every time she goes by our temperature recorders start acting up." (Courtesy Wheelco Instruments Company)

As a result of that particular occurrence, the following precautions were placed in effect:

1. A guard rail was placed around the platform of the lift truck.
2. The firing circuit was shielded and grounded.
3. The terminal ends of the firing circuit were grounded and twisted together.
4. The leads from the firing squibs were kept twisted to keep them short-circuited until all connections had been completed. Instrumentation was installed in the firing circuit to indicate any residual potential involved.
5. The firing circuit was padlocked open with keys in the possession of operator making the final connection.
6. The lift truck was grounded and the missile was grounded.

It would be well to discuss some of the general fire prevention techniques utilized by one installation in the New England area in an effort to prevent fire damage, and then I would like to contrast these measures with another installation which I visited recently.

The first location consisted of a series of carefully designed and well-built concrete pits, with sturdy walls, bullet-proof glass viewing windows, remote control operation and instrumentation, with open ends of the test firing pits directed toward an unoccupied area.

An elaborate system of control devices, warning sirens and forms of automatic protection were present. Exhaust fans were provided for blowing out the pits after a test run, to eliminate residual fumes from alcohol, oxygen, or other flammable materials.

Properly trapped drains were provided in the floor. Self-actuating sprinkler controls were provided with flood type sprinkler heads. A standpipe and water tanks were provided as well as manual controls to supplement the automatic controls. Two pieces of excellent fire equipment, manned by trained personnel were in constant readiness in a heated garage in the immediate vicinity of the test pits.

Fire and safety regulations were posted and each visitor entering the test area was required to read the regulations under the watchful eye of a civilian guard and then

acknowledge by his signature that he had read them and would comply with them.

In contrast were conditions found at the other location. Outstanding was the presence of a liquid fuel, which must be retained at a temperature many degrees below freezing in order to remain in its liquid state. This fuel is kept stored in a chemical bottle, packed in dry ice. We were surprised to learn that the supply of dry ice was a more or less regular process, but that the operators actually handling the chemical experimentally were not acquainted with any readily available supplementary sources for dry ice should the regular supply fail.

We found the operating pit sunk below ground level in one area with a loosely constructed timber and sod wall and roof. The fire pump was set on the edge of an open, artificial lake, outdoors, and it was rather difficult to start in cold weather. Also the lake froze solid in the winter.

The fire engine and crew are housed some distance from the test area, and are subject to call, usually being present when large runs are anticipated. One of the smaller test cells was in a Nissen hut with a hole cut in the side, the walls constructed of wood being approximately 40 inches from the center of the exhaust. They were charred by the intense heat to which they were exposed. Hand fire extinguishers were present.

Throughout the area were scattered small groups of one, three, four and even 40 barrels some empty, some full, the contents unmarked by storage signs, except upon close examination of the 1-inch stencils on the barrel heads and in one location a liquid oxygen bottle with open manual control was merrily bubbling away. It is noteworthy that neither of the locations mentioned has had a bad accident experience. However, it is easy to guess in which one we felt more comfortable during our visit.

The foregoing examples will indicate that we are far from perfect

—To page 79

HOW MUCH ARE SLIPPING ACCIDENTS COSTING YOU?

ACCIDENT REPORT

Cause of accident:

Man fell on a slippery floor.

Means of prevention:

Install A.W. ALGRIP
Abrasive Rolled Steel
Floor Plate.

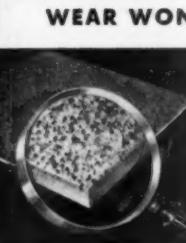


There's an easy, economical way to end slipping accidents that steal man-hours and drag production down. Put positive non-slip protection in your plant with exclusive A.W. ALGRIP Abrasive Rolled Steel Floor Plate.



NON-SLIP—EVEN ON STEEP INCLINES!

ALGRIP is made by rolling tough abrasive grain (the same kind used in grinding wheels) uniformly as an integral part of the steel plate's upper portion. When you walk on ALGRIP, hundreds of tiny safety brakes grip your feet at every step. Result: It's virtually impossible to slip—even on steep inclines.



WEAR WON'T WEAR OUT ITS SAFETY!

ALGRIP's safety isn't merely a surface treatment. Note the even distribution and depth of the abrasive grain. As the surface wears, new particles are exposed, so ALGRIP keeps its non-slip qualities for a lifetime. It needs no maintenance. Rolled steel makes it stronger than other abrasive floorings. It withstands hard blows and heavy loads without cracking or breaking. And thinner sections can be used without reducing load carrying capacity.

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A.W. ALGRIP ABRASIVE ROLLED STEEL FLOOR PLATE

ALAN WOOD STEEL COMPANY

Conshohocken, Pa.



Other products: PERMACLAD Stainless Clad Steel • A. W. SUPER-DIAMOND Floor Plate • Plates • Sheet • Strip • (Alloy and Special Grades)

Over 125 years of iron and steel making experience.

Safety and Quality Production

(From page 39)

at the mill entrance). On this board each week is posted on a 22 x 28 in. card the safety slogan for the week. The board also states the amount of the current jackpot. Each week, \$5 is added to the jackpot and an employee's name is drawn from the Personnel Department Kardex records. If the slogan is missed, the jackpot grows by \$5 each week. Keen interest has been maintained in this simple contest for 2½ years with the jackpot reaching as high as \$35.

5. *Frequency Rate Comparisons*. Our yearly experience since start-up is set forth on a 4 x 6 ft. panel with a brief description of what constitutes a frequency rate.

6. "Production with Safety" Panel, 6 x 8 ft. (located near the time clocks). The "Quality Production with Safety" theme is repeated with "production" and "safe day" totals changed daily.

7. The impact of what has been noted so far is made before an employee punches his time card. The *Time Card* itself has imprinted on it in red a safety slogan. (These slogans change with each change of time cards.)

8. *Safe Man Hour Thermometer*, 8 ft. high (located immediately beyond the time clocks). Across the top of the thermometer is the challenge "Let's Make it a Million Safe Man Hours." (A previous objective of a half-million safe man hours was achieved during the spring and summer of 1951 when the project completed 728,000 consecutive safe man hours before a disabling injury broke a run of 192 safe days.)

9. *Unit Scoreboard*, 3 x 9 ft. (located shortly beyond the thermometer) keeps the score of disabling injuries during the current year of all 20 units into which the project is divided.

10. *Individual Unit Scoreboards*, 2 x 3 ft. (located in each of the 20 units). These scoreboards have a green cross for safety at the top which contains the "Production with Safety" theme. Each board is supplied with interchangeable numbers and there is room on the board for the best previous safe day record and the current safe day total. A small blackboard section 10 x 20 in. provides space for any brief message, and an 11 x 14 in. soft board panel projects at the bottom on which a single safety poster or minutes of safety meetings can be posted.

11. *Giant Safety Slogan Panels*, 3 x 12 ft. Six of these double sided safety slogan panels, made up of light framing and sign cotton are routed through six strategic locations in the mill at monthly intervals. Each month a new panel is started through the circuit and

the panel used for six months in all six locations is retired.

12. *Bulletin Boards*. A regular bulletin board service, under glass, is maintained in six mill and office locations and National Safety Council and other safety posters are utilized in the safety sections of these boards.

Besides signs and posters we also use the following:

1. *Daily Letter*, sent daily to all supervisors, contains quality and production information, special announcements and a safety message. This is a daily reminder to each man in the line organization that safety is very much on the agenda. And this daily letter provides a regular communication channel for important items which would otherwise require special memos. It takes time to get out this letter but it is time well spent.

2. "Quality Production with Safety" sheet, distributed weekly to all employees. This single 8½ x 14 in. sheet was originated by the Accident Prevention Committee. It is devoted to production and safety matters and is enlivened by two or three good jokes. Focusing attention on the basic theme of operation which is printed in three colors across the top of the sheet, this means of communicating with every employee creates many valuable impressions.

3. *Terrace Bay News*, a weekly mimeographed newspaper distributed to all Terrace Bay residents. This medium carries safety messages along with regular news items.

4. *Co-operation*, a bi-monthly publication of our parent organization, Kimberly-Clark Corp., distributed to all corporation employees. From a safety standpoint, we make particular use of this publication in recording the achievements registered by our safety efforts. Much of this record is kept pictorially as this is our only medium, at present, for obtaining a wide distribution of pictures of safety activities and accomplishments.

What works specifically in one safety program may not prove equally effective in another situation, so I would caution against just copying what someone else is doing. However, where a sound principle works well in someone's safety program, it will probably do a good job elsewhere. As a principle, I don't believe you can overdo the variety of appeals which you use to sell safety, as

long as those appeals are geared to the basic philosophy underlying your program.

Safety Committees

As for committees in our safety program, we have three types:

1. *Terrace Bay Accident Prevention Committee*. This committee is responsible directly to the mill manager who acts as its general chairman. The committee is also made up of all mill superintendents (who may invite to the meetings a foreman of their choice); local union officials (president, vice-president and secretary); the chairman of each departmental safety committee (who may be either salary or hourly rated men); the plant nurse and the safety supervisor who acts as secretary.

This committee oversees all safety activities, reviews statistical reports, determines mill wide safe practices when necessary, institutes stunts and contests and considers matters referred to it by the various departmental safety committees.

2. *Departmental Safety Committees*. Each department has a departmental safety committee responsible to the superintendent of that department.

These committees, whose composition is determined by the superintendent, conduct regular inspections of their departments, consider items of safety brought to committee members by employees of the department, help to plan general meetings of all members of the department and in many instances decide subjects for such meetings.

3. *Special Committees or Sub-committees*. These committees may be set up by the Accident Prevention Committee or any Departmental Safety Committee and they may cover such items as: special events, contests, good housekeeping inspections, or they may be set up to study a particular safety problem.

It is important that I should emphasize that all committees which are in any way a part of our accident prevention program are responsible to either a superintendent or the mill manager. This keeps the responsibility for safety in the hands of the line organization and therefore eliminates any possibility of divided authority.

Certain other measures also have an important bearing on our accident prevention program.

Accident and Hazard Investigations. All accidents involving disabling injuries, many accidents involving minor injuries, and particular hazards which cannot be

readily eliminated are all subject to formal investigation.

Statistics "with meat on them" prove of real value as a measuring stick in checking on progress and can be made interesting if some thought is given to the subject.

First Aid. From experience we know that a plant nurse with the right attitude can be of invaluable assistance in promoting health and safety quite apart from first-aid service. We have also found that employees trained in first aid are also a real asset to a safety program.

Safety Contests. While the merits of safety contests may be debated, we believe they serve a useful purpose. People like competitions; that is why sports are so popular. For this reason, we operate two mill-wide contests:

1. A slogan contest.
2. A contest wherein each of our 20 mill units competes against its own ability to work safely for 50 day periods at the end of which the unit receives prize money (if earned) on a per capita basis, which may be disposed of in any manner decided by members of the unit, except individual distribution of the cash. A contest operated in this manner eliminates, fairly well, the criticism often heard when inter-department contests are run that some mill units are more hazardous than others. (A copy of rules governing this type of contest will be gladly sent to anyone on request.)

We also compete in the following contests:

1. A two-mill contest with Spruce Falls Power and Paper Co., Kapuskasing, Ontario. (Present position 1st.)
2. An 11-mill contest involving all pulp and paper mills in Northwestern Ontario. (Present position 1st.)
3. An Ontario-wide contest involving 22 Class "A" pulp and paper mills. (Present position 1st.)
4. The "Safest Mill in Canada" contest for pulp and paper mills. (Present position 3rd.)
5. The National Safety Council Paper Industry Contest. (Present position 7th, among 73 mills in our classification.)

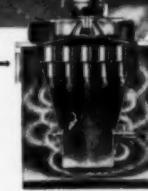
Maintenance Shutdown Meetings. Whenever a major maintenance shutdown is scheduled, it is immediately preceded by a mass meeting of everyone who will be doing shutdown work. Apart from dealing with particular hazards, these meetings place a great deal of emphasis on the elimination of "chance taking" and "hurry." We feel that such meetings pay-off in better workmanship as well as fewer mishaps to machinery, tools,



Protect your employees' health
As collection efficiency goes up
employees' hazards and maintenance costs go down with the
AEROTEC
INTEGRAL
DUST COLLECTOR

(Above) Exhaust from this Aerotec Integral, connected to automatic precision grinding machine, is returned to the room. Contaminant velocity is 4500 fpm. This is one of many Aerotec applications at the Winchester Repeating Arms Company, Division of Olin Industries, Inc., in Connecticut.

(Right) Note the compact arrangement of elements in the Aerotec Integral Collector. As this cutaway view shows, the large cyclone, for collecting larger dusts, has an outlet leading to a series of highly efficient, small diameter tubes, for the finer dusts.



• **Self-cleaning tube design - No filters to plug**

• **Trouble-free operation - No moving parts to fail**

Combatting the hazards of industrial dust with the Aerotec Integral Collector is good insurance against loss of productivity in your plant. You safeguard the health of your workers and eliminate the danger of explosion from high dust concentrations. In addition, you protect machinery and equipment in your plant from excessive wear or corrosion caused by abrasive or corrosive dusts. Efficiency goes up; maintenance costs down.

The Aerotec Integral Collector controls dangerous dusts at their source with a higher constant collecting efficiency than conventional impingement types, over a wide range of flow rates. There are no filters to plug or liquids to watch. This unit delivers constant suction at the hood. It operates for long, maintenance-free periods, requiring only periodic emptying of the spacious dust bin.

To meet increasing government demands for high production schedules, plant engineers in heavy industrial sections of the nation are ordering more and more Aerotec Integral Collectors. It is an ideal way to assure clean, healthful surroundings that pay off in high output and worker satisfaction. To determine just the right type of equipment for your particular dust collection problem, call or write today.

Project Engineers

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and most important of all—men.

Good Housekeeping. Much effort is expended by inspection committees on a mill-wide and departmental basis in maintaining a high level of good housekeeping throughout the entire operation. A low injury frequency rate and good housekeeping go hand in hand.

But I would caution against any attempt to merely inspect safety into a mill. Inspections simply point out where controls have failed. If this fact is clearly recognized when inspections are conducted, they will prove of real value for we then deal with "causes" and not just note the "effects."

Safety Organizations. I would urge safety supervisors to get into safety organizations with a will to help in every possible way, bearing in mind that if what you have in "stock and trade" doesn't meet the competition at the outset, you'll soon find a way to see that it does if you are really interested in doing your job. As you find more of the answers, your own mill will benefit directly and your contribution to the safety movement will be just that much more effective.

And don't be afraid to step in and do a job where you see a need. For example, at Terrace Bay during the past few months, with the collaboration of our Pulp Department superintendent and members of the department safety committee, we have developed a data sheet for the National Safety Council on *The Caustic Liquor Room*.

Public Relations. If you have a Public Relations Department, use it. If you are "on your own," get next to the editors or reporters of local and area newspapers and magazines. Any reference to your safety efforts will add prestige to your program and create favorable "impressions" on your employees as well as the general public. At Terrace Bay, we are very grateful for the support given our safety program by a number of newspapers and magazines.

One very important phase of our safety program has been purposely

left to the last. It is the personal approach to the employee from the time he joins our ranks. Before commencing work, the subject of accident prevention is personally covered with him by the safety supervisor. Time consumed by this phase of our indoctrination program varies from 15 to 40 minutes, depending upon whether an individual or a group of up to eight men is involved. The employee is told the story of LongLac's accident prevention program and the success which has been achieved.

Reference is made to the union agreement booklet, a copy of which is given to each employee. This booklet contains all the mill rules governing every phase of our operation and penalties for violations of these rules are clearly stated. Rules related to safety are included. For example, violating "Do not Start Tag" regulations is listed as "a reason considered sufficient for immediate discharge."

Some may disagree with the principle of penalties tied to compulsory rules. We are convinced, however, that clean-cut rules in writing, with penalties that are fair to all concerned, serve a very useful purpose in keeping that small minority in line who would probably never stay within the law even though exposed to all the appeals to which normal people respond. In other words, we apply the same principles which are effective in every day law enforcement.

In addition to general information, which also includes reference to the first-aid room, necessity for reporting all injuries promptly, safety shoe program, prescription goggle program, smoking areas, prompt action necessary if in contact with chemicals and the extent to which the company has gone to provide a safe place to work, specific reference is made to the department where the new employee is scheduled to work. If there are general hazards in that department they are noted; (for example, all Jackladder men are urged to make sure tools used are

sharp and to have respect for them) but specific job instructions are left up to the foreman and the new employee is so informed.

We also try to get across the thought that we have some idea of "that strange feeling" with which even the most seasoned workman starts a new job. And in parting, we stress the fact that "Safety is Everybody's Business" and that our safety program will continue to be successful only as each person takes a personal responsibility for his own safety and the safety of his fellow workmen. We generally get a smile by injecting "It's mostly a case of using what's between your ears all the time."

Lee Warren James

—From page 31

mental in maintaining it as one of the country's most important clubs.

The son of a carriage builder, born near Dayton, Mr. James won his legal education by a combination of study and actual law work, passing his bar examinations near the head of the list in 1900.

His long and varied legal experience has given Mr. James a broad understanding of business, industrial, and civic affairs. He has won the friendship and admiration of American leaders in all walks of life. The confidence placed in him by Mr. Irvin is typical of the opinion of Mr. James held by all who know him.

Ned H. Dearborn, president of the National Safety Council, commented on Mr. James' election:

"Our new chairman is a man of great intelligence, energy and humanity. He will, I am sure, carry on the splendid work of his predecessor. I am profoundly grateful for the action of the Trustees in electing him to this position of decisive leadership."

"I pledge to Mr. James the whole-hearted cooperation of the members and staff of the National Safety Council, and I bespeak for him the support of all in our country who wish to support the fight against accidents."

William A. Irvin

—From page 31

sylvania Railroad in 1888. In 1895 he became shipping clerk with P. H. Laufmann Company, Apollo, Pa., and from 1904 to 1924 was assistant to vice-president, American Steel Tin Plate Company. In 1924 he was promoted to vice-president in charge of operations and in 1931 became vice-president of United States Steel Corp. From 1932 to 1938 he was president of the corporation and continued as a member of the board.

For his outstanding services to safety Mr. Irvin received numerous honors. In April 1950 he was guest of honor at a testimonial dinner attended by many of the country's leaders in business and industry within the last year. He received citations from the governors of Minnesota and Pennsylvania in recognition of his safety leadership.

Streamlined Tigers

—From page 75

in our control of the fire and explosion hazards in this new field. Most of the experimenting is done with single models, types, hook-ups and fuels, and methods vary from day to day. All of the elements of hazard present in any experimental laboratory are present in jet and rocket development but the normal hazards are magnified by high energy fuels.

It is therefore essential that every effort be made to anticipate all hazards, even though this requires constant revision of safety standards and procedure to fit each new set of variables. No place is the slogan "Constant vigilance is the price of safety" more appropriate than in this new experimental field.

Correction

In the December NATIONAL SAFETY NEWS, J. H. Waterman, manager ground safety for Trans World Airlines, was incorrectly listed as General Chairman of the National Safety Council's Air Transport Section. The general chairman for the current year is ROBERT L. POTTER, supervisor of Industrial Safety, American Airlines, Inc., Tulsa, Okla.



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COST LESS than conventional types!**



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Gives full head-car-neck warmth. Ideal for wind or rain protection.

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I Lose My Right Hand

—From page 29

will be meeting the present members of the executive committee or their successors, next year, the year after, and ten years from now. I believe, honestly, that the proposals I am making will do more to prevent accidents in Jackson-Barnes over the next ten years than yours will. It is true that you have a logical case, and that if I was the almighty power in this company, I would put in every one of your proposals, and spend some more money for safety in ways you haven't thought of yet. I would give this company the largest safety budget, per dollar of payroll, in Illinois, and I think I would make money for the company in doing so.

"But I'm not that almighty power. I'm just a department head asking for a piece of change in competition with a lot of other department heads who also can argue well. I don't have to argue to an all-wise court of experts. I have to argue to a group dominated by a brilliant salesman, a production-minded factory manager, and a cold-blooded accountant whose vast knowledge of accounting techniques does not qualify him as an engineer.

"When you try to sell the idea of wearing goggles to a new kid on a surface grinder, you don't deliver a medical lecture on the effect of the intrusion of a fragment of metal upon the tissues of the cornea. You say, 'Jack, you like to play baseball. A one-eyed guy can't judge distance good. And that thing you're workin' on will darned well knock an eye out if you don't wear these glasses.' You say that, knowing perfectly well that what you said was bunk. No piece of metal is going to fly from that kind of grinder that will knock out his eye. But it may injure the eye, and he may lose the sight of it. You didn't tell him the truth as you know it. But you told him what will bring him closer to a knowledge of what he truly should do than if you had described the process of irritation, possible infection, and ultimate loss of sight.

"I'm doing the same thing. I'm

not going to tell the executive committee the truth as you and I know it. But I'm going to tell them what I think will create in their minds a knowledge of what they should do that is nearer to truth than they would get from a franker, fuller statement of our needs."

Jim Mason apparently took it. He came around to an expressed approval of my tactics, and even came up with a suggestion or two of his own to strengthen my sales pitch.

Apparently it worked out all right. I got my expected half of what I asked for. Now it's almost time to prepare the next budget proposals, and I think that Joe Roscoe and Lars are impressed with the results and will approve now what I didn't ask for last year.

I could work up a pretty good mood of optimism about my astuteness — I could, that is, if I didn't have Jim Mason's resignation on my desk, if I didn't wonder whether, in spite of all Jim's protestations of respect and liking for me, it may not have been partly a disillusionment with me that made him go looking for that job at Lonol.

If it was disillusionment, all my calculations about what was right to do at that last budget session are wrong. I would have been better off, and Jackson-Barnes' accident rate would have been lower in the next ten years, if I had said, "To hell with this year's budget. It's not worth losing a good man for."

Green Cross News

—From page 48

Stars for Safety

HOAGY CARMICHAEL, Hollywood movie star and popular song writer, accepted an invitation to appear at a combination civil defense and safety rally in Shreveport, La., sponsored by the Caddo Bossier Safety Council recently. In the belief that this music celebrity would draw a tremendous audience, Manager Charles Doerler of the safety council, who is also one of the leaders in the Shreveport civil defense work, engaged the State Fair Grounds for the rally

and 4,000 persons attended the affair.

New Dayton Manager

MARVIN PURK, of the safety department of Frigidaire Division, General Motors, Dayton, Ohio, has been appointed manager of the Safety Council of the Dayton Chamber of Commerce and assumed his new duties the first of the year. Purk succeeds Donald H. Battin who has been called back into military service as a reservist. Battin left for Camp Polk, Louisiana, on January 20. Purk comes to the Council with an excellent background of industrial experience, having been with Frigidaire 11 years, five of which were spent in the Safety department.

C. H. Zealand Retires

After many years of service as executive director of the Minnesota Safety Council, CHARLES H. ZEALAND has retired and he and Mrs. Zealand have moved to North Carolina. They have located at 108 Person Street in Louisburg, where Mr. Zealand has a son. "We also have a daughter in New York and another in Washington," Mr. Zealand wrote recently, "and since we had neither kith nor kin in Minnesota, we are now really living nearer 'home' than for some time." Mr. and Mrs. Zealand recently celebrated their 56th wedding anniversary. Mr. Zealand has many friends in safety throughout the country who have watched with interest the broad expansion of the Minnesota Safety Council under his able administration. His successor at the Minnesota Safety Council has not yet been announced.

Effects of Sound on Body To Be Reviewed

EFFECTS of noise on human beings will be examined thoroughly during a four-day training course on the Acoustical Spectrum at the University of Michigan, Ann Arbor, February 5-8.

Second day of the session will be devoted to study of how sound affects the human body, with Dr. A. C. Furstenberg, dean of the University Medical School, presiding. Biophysics of sound per-

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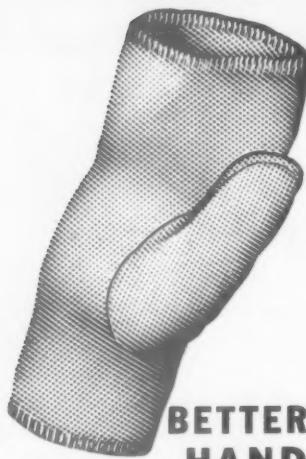
- Open the can...trowel it on...say so-long to slips.
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ception will be considered with respect to anatomy and physiology. The pathological and emotional effects of sound also will be studied. In the afternoon session, audiometry and occupational deafness will be considered and field investigations on the effects of sound on plant personnel and military personnel will be reported upon.

Other sessions will be devoted to study of sound instruments to measure sound, ultrasonics, mechanical vibration, and sound control. Medical doctors and other scientists in the increasingly important study of wanted and unwanted sound, will present technical papers and lead discussions during this "school on sound."

Safety's HONOR ROLL

Current records of operation exceeding 500,000 man-hours without a disabling (lost-time) injury are invited for this department. For records of one year or more a minimum exposure of 300,000 man-hours is acceptable. Records should be continuing or terminated within one year of date of reporting.

Brillion Iron Works

Brillion, Wis.—May 26 to November 28, 1951; 551,139 man-hours.

Gladding, McBean & Co.

Los Angeles, Calif., Southern Div., heavy clay products plants—December 18, 1948, to March 13, 1951; 2,887,000 man-hours. This exceeds previous records reported for Stone, Clay and Glass Products Industries.

Dinnerware Div.—July 13, 1950, to November 1, 1951; 2,600,000 man-hours; continuing.

Quebec Iron and Titanium Corp.

Sorel, P. Q.—June 1 to November 30, 1951; 485 employees; 588,900 man-hours; continuing.

Texas Highway Dept.

District 5, Lubbock, Tex.—October 25, 1950, through November 30, 1951; 821,967 man-hours; continuing.

The Torrington Co.

Torrington, Conn.—June 29 to December 1, 1951; 1,864 employ-

ees; 1,506,339 man-hours; continuing. A previous record of 3,922,618 man-hours was established between October 10, 1949, and October 28, 1950.

U. S. Dept. of Agriculture

Mississippi National Forests, Jackson, Miss.—November, 1950, through November, 1951; 467,000 man-hours.

Wisconsin Public Service Corp.

Green Bay, Wis.—January 9 to September 25, 1951; 2,657,778 man-hours. This exceeds previous records reported for combination public utility companies.

Republic Steel Corp.

Youngstown District, Electrical Dept.—Two years as of December 20, 1951; 892,181 man-hours; continuing.

Youngstown District, Butt and Continuous Tube Mills—One year as of December 26, 1951; 1,457,213 man-hours; continuing.

Records for Open-Pit Mines and Quarries

A STEADY INCREASE in the number of man-hours worked without a disabling injury by various open-pit mines and quarries is one of the evidences of progress in reducing injuries in these operations. Not so many years ago a record of 1,000,000 man-hours was exceptional but records of today are much larger.

The Mahoning and Embarrass Mines operated by Pickands Mather & Company recently established two new top marks for open-pit mines and quarries. The Mahoning Mine employing 274 men worked 2,075,477 man-hours from January 20, 1948, to October 30, 1951, for the best record known to the National Safety Council.

The Embarrass Mine employing 335 men holds the second best record by working 1,931,421 injury-free man-hours from April 29, 1948, to February 28, 1951.

A third mine, the Sagmore Mine employing 106 men, has worked since June 20, 1944 to the present time without a disabling injury and accumulated 1,513,929 man-hours. This record is especially noteworthy because of the size of the property and a long period of 6½ years without a disabling injury.

Safety Trailer

—From page 20

The Department also conducts an advanced training course using the *Foremanship Training Series* and *The Human Element in Safety*, along with other sound slidefilms.

Last year the trailer was used in the organization of some 50 industrial safety groups in the smaller communities of North Dakota. A large proportion of these completed the course and received awards. Reactivation of a number of the groups was necessary and it was found that best results were obtained when qualified local persons were enrolled for the Industrial Safety Committee. Paul Drew, safety director for the State Workmen's Compensation Bureau, reports that in one recent month groups in 23 cities held regularly scheduled meetings, in addition to those held at the trailer.

After using the trailer for two seasons, Commissioner Bryant feels that it has been highly effective in safety promotion. Each community that has been visited by the trailer has shown a keen interest in it from the moment it pulled into town. Undoubtedly, it helps in getting groups together for initial meeting. In communities of 1,000 to 1,200 it has been possible to get as many as 50 persons together, which is a very representative portion of the workers of the community.

For these programs, the Department furnishes films on a loan basis. In many towns a local automobile dealer with sound equipment has been glad to lend the equipment and the services of a man to operate it. Through this initial method it has been possible to get active safety groups started where previous attempts had failed.

The Workmen's Compensation Bureau has been active in the industrial safety field for the past 12 years and has employed a safety director for this period, except during 1943 and 1944. A program is being developed for rural communities and the trailer is an effective means of bringing the program to these localities. Previously, the approach to the problem was extremely difficult. It was necessary to rent meeting places and

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contact employers and employees. Frequently it required a second or third trip to a community before an effective safety group could be organized and functioning.

Eventually the department plans to use the trailer to bring specialized programs to some of the larger industrial plants of the state. It is expected that local safety councils will eventually be sponsored by these same people.

Delinquent Cats

—From page 21

I was in the office in the middle of the afternoon and had forgotten the entire incident when I heard a bloodcurdling yell. You know how a safety engineer goes on point when this happens. Visions of safety records dance through your head and you slowly advance on the situation. It came from one of the smaller offices directly across from the cat sanctuary. Someone, not in the know, had inadvertently opened the cell door and four coiled springs had exploded into the office building.

They must have been plotting their escape for hours as they scattered in four directions. Each one had taken a commanding position under a radiator, on top a file, or under a book case, and intended to hold against all comers. This was no longer open warfare—the enemy had infiltrated into our homes. Lives were in jeopardy.

No longer could we wait for carefully prepared campaigns. Action was necessary before the whole central organization was thrown into chaos.

Selecting my defensive equipment carefully, I put on a lab coat, welder's gloves, a face shield, and went into action armed with a window pole. If you can imagine a berserk model airplane with barbed wire for propellers, you have some idea of the problems each of these delinquent devils presented. Added to that the fact that they would seek the remotest corner under a case or behind a door and move only when pried loose with the pole. Meanwhile, mother was ranging from one to the other giving last stand instructions. Now that I think back, it was much like the game we had when we were

kids where you were supposed to get three ball bearings into grooves. Just when you got two of them lined up and the third was just about in place, one of the others would roll out of position and you were back where you started from.

You can be sure that the further education of cats in better living was furthest from my mind. I can remember yelling "Shut the dang door" (and the years have mellowed the words) as I extricated the cats from one room and got them out into the hall. The whole scheme was to clean them out of one entrenched position after another until they were out in the hall and then with a broad frontal advance, force them down the hall and through the open door hoping they would return from whence they came.

This was all accomplished with help from the bystanders. On one side the girls were calling "Oh, don't hurt the poor things" and, on the other, my fellow engineers were encouraging me with "Come on, Clyde Beauty, you've got three of them on the perch—only one more to go." All of which was most helpful.

I suppose those cats returned to their den of iniquity. I know that Miss Jones made regular trips to the end of the trench to give them food. Flame throwers for cleaning out pockets of resistance were unknown then, but I can see how some situations called for tactics of that kind.

Safe Plant Panorama

—From page 71

have been theorized upon but have never yet been accurately measured. However, in the industrial buildings which we are designing today, some thought is given to places of refuge against the threat of an atomic bomb blast.

This provision is more intensely desired and the danger given more recognition by management in the coastal regions than in the interior. Yet Chicago or Detroit certainly is no further away from our potential enemy than are Hartford or Seattle. It is my opinion that consideration should be given in the design of any facility impor-

tant to the national defense or economy to provide at least places of refuge for personnel in the event of a bombing attack. It is psychologically important, even though we design with meager information.

There are no exact data on which to base such a design, but studies are being made based on tests which have been executed in remote regions, and we work with that meager information.

Subsequent to the last war, consideration was being given to protection of plants which produced weapons of defense. Should we disperse or should we go underground? Certainly, dispersal of facilities, duplication of facilities, dispersal of sources of supply, dispersal of sub-assemblies; in other words, dispersal would be the more logical answer.

There is much opposition to dispersal, particularly in highly industrialized regions. I believe that this opposition stems from the fact that it has not been properly explained. Dispersal does not necessarily mean separation of facilities by hundreds of miles. The radius of effect of an atomic bomb should be sufficient.

Going underground, with all that this measure would imply, is abhorrent to me. If we, in our high degree of civilization, have produced something against which we must protect ourselves by going underground, perhaps our civilization is not worth saving.

Working with Authorities

In any discussion of safety of design, we must not fail to give credit to those public agencies which are charged with the responsibility of public health and public safety. The industrial commissions of the various states are performing a service which is not generally recognized.

In all of our large industrial plants, there are violations of the code. The size of the structures which are necessary for the operations therein preclude absolute compliance with the rules and regulations in the book. Recognizing this fact, we have a definite policy in our organization to visit these state commissions before plans and layouts have been final-



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ized, to lay before them the problems we face, the violations which appear insurmountable, the means we suggest for alternate solutions. Invariably, through that approach, we have received the utmost in cooperation.

This course is recommended to all of your architects and engineers in attaining the full element of safety of design with minimum cost to the owner. But please do not try to get away with anything. Lay your problem before them, show them where you are violating the code, show them your alternate suggestions or compromise, and nine times out of ten these public servants will go out of their way to help.

From constant application of principles of safe plant design, certain items which have a direct or indirect bearing on safety of working conditions come forcibly to mind:

1. Structural sufficiency not only for the initial production contemplated, but flexibly arranged for periodic changes in production methods.

2. Adequate and safe means of communication between plant personnel facilities and parking areas.

3. Safe merging or separation of plant traffic from the high speed traffic lanes of public highways.

4. Safe means of communication within the plant. Use ramps for vertical communication where space permits; where space is limited, use a stair with non-slip treads. Ladders should be infrequent and used only for limited access. Where ladders are required, use safety hoops.

5. Be sure that high tension lines, such as are required for cranes, can be reached only by authorized personnel. Access platforms and walkways serving lights, transformers, heating units and the like should be protected against use by other than maintenance personnel.

6. Do not limit crane clearances to the minimum required for the operation of the cranes. It is not costly to allow a little extra overhead and laterally, and sometimes this expedient will save a life.

7. Provide adequate light, proper painting and good ventilation to receive dividends in better eye and lung health.

8. Consider the possible effects of enemy action on plant and personnel, and provide a place of temporary refuge in the event of bombing attack. It will be a psychological and mental asset, and in the event of actual attack may prove to be the difference between life and death for your personnel.

9. Treat all hazardous areas handling flammable fuels with the greatest of care. Avoid basements in these areas, if possible. If basements are essential,

install fume detectors. Adequate ventilation is a must.

10. Provide means of quick exit from hazardous areas. Man doors, properly located with panic hardware on the inside, will permit the man working in this area to get out, and keep all unauthorized persons out.

The accent placed on safety features within the industrial plant has resulted in design and layout wherein the employee is actually safer than he is at home. Home safety has lagged behind. So has traffic safety. But when the employee has arrived within the gates of a plant of modern design, if he is mentally alert, he will need to go out of his way to get hurt.

\$100,000,000 Loss

—From page 33

20 per cent of occupational dermatitis is due to allergenic substances and that about 80 per cent is due to primary skin irritants. Careful questioning as to other allergies or family allergies of thousands of workers having allergic occupational dermatitis has failed to find that the "allergic diathesis" plays an important part in allergic occupational dermatitis.

Personal Cleanliness. In my opinion, lack of personal and environmental cleanliness is the most important predisposing cause of occupational dermatitis. If the potential irritant does not touch the skin it cannot affect it. The shorter the time that it remains on the skin the less likely it is to affect it. Failure of workers to wash chemicals from their skin soon after contact, failure to keep work clothes clean, failure to keep machines clean, and failure to maintain "good housekeeping" are the principal components of the "lack of cleanliness" and the principal predisposing causes of occupational dermatitis.

Actual Causes

Actual causes of occupational dermatitis may be divided into (1) Mechanical, (2) Physical, (3) Chemical, (4) Plant Poisons, (5) Biological.

1. **Mechanical agents** such as friction and pressure give rise to painful callus and abrasions which may become infected.

2. **Physical agents** are heat, cold and radiation.

High temperatures can cause intertrigo, heat rashes and burns.

Cold can cause frost-bite especially if accompanied with dampness. One cause of disability among our soldiers in Korea during the past winter has been frost-bite due to perspiration and moisture freezing on the feet.

Radiation in the form of excessive sunlight, electricity, X-ray, radium, atomic fission products and radio-active isotopes can cause skin burns, skin atrophy and can-

cer. Worthy of mention are the hazards from commercial X-ray installations for examining metals for flaws, examining fruit for imperfections and examining feet in shoe fitting.

Outdoor workers such as farmers, sailors, surveyors and track inspectors, especially blondes above middle age are prone to develop occupational skin cancers. Those handling petroleum and coal tar products are apt to become photosensitized and more

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susceptible to solar radiation.

3. *Chemicals* are the most frequent causes of occupational dermatitis.

Chemical causes of occupational dermatitis may be divided into inorganic and organic and each of these may be divided into primary irritants and sensitizers.

A primary irritant is one which will cause dermatitis by direct action on the skin at the site of contact if it is in sufficient concentration or quantity and permitted to act for a sufficient time. Examples of primary irritants are strong acids, alkalis and solvents.

A sensitizer does not necessarily cause demonstrable skin changes on first contact, but may effect such specific changes in the skin that after five days or more further contact will cause dermatitis. A primary skin irritant may also be a sensitizer. Examples of pure sensitizers are some of the synthetic dyes, photo-developers, rubber compounds, cured synthetic resins and most explosives. Examples of primary irritants which are also strong sensitizers are phenols, formaldehyde and chromates.

4. *Plant poisons*. Many plants can cause dermatitis. The family *Anacardiaceae* has the most irritant members. Poison ivy, poison oak, the Japanese lacquer tree, the cashew nut tree, the el éite are notorious members of this family.

Some trees used for lumber such as certain mahoganies, Brazilian walnut and cocobolo have caused dermatitis among carpenters and others who handle them.

5. *Biological agents* may cause or be super-imposed upon occupational dermatitis. They may be divided into (a) bacterial infections, (b) fungus infections and (c) diseases caused by parasites.

(a) Anthrax, erysipeloid, vaccinia, glanders and staphylococcus infections may be occupational among handlers of animals and animal products.

(b) Superficial fungus infections may be occupational among food handlers, animal caretakers and hair dressers.

Deep fungus infections may be occupational among the handlers of plant products.

(c) Parasites may cause occupational dermatitis among those who in the course of their work are exposed to them.

Pediculoides may affect the skin of grain and straw handlers. Hog itch due to round worms among abattoir workers, grocers' itch from mites on dried fruits and cheese, are not uncommon examples of parasitic occupational dermatitis.

A compilation of 41,000 cases of occupational dermatitis shows that the following 5 headings include more than 50 per cent of all the causes of occupational dermatitis. (1) Petroleum products. (2) Plants. (3) Alkalies. (4) Solvents. (5) Metals, metal plating, including chromates.

Prevention

Occupational dermatitis can be reduced to a minimum by proper preventive measures.

The ideal method of prevention is to reduce to a minimum skin contact with potential irritants. In some industries this can be accomplished by totally enclosed manufacturing processes. In others where this is impossible, proper general and local ventilating and exhaust systems should be installed. In still others, such as machine shops, railroad round houses, etc., reliance is placed on good housekeeping, protective clothing, clean work clothes, protective ointments and approved adequate facilities for frequent washing of irritants from the skin, furnishing proper industrial skin cleansers and educating the workers how to protect themselves from industrial poisons.

Good Housekeeping

This means keeping clean the floors, walls, ceiling and machines. Keeping closed all containers of irritant or poisonous chemicals. Keeping toilets, washrooms, showers and wash basins in good working order, clean and adequately supplied with toilet paper, paper towels and proper skin cleansers. It is necessary to specially employ someone to attend to all of this.

Protective Clothing

When protective clothing is relied upon to prevent dermatitis it should be furnished, kept clean and in good repair by the management. To do this, arrangements should be made to launder and

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• **LENS**, available in Federal Specification shades 3 through 6, is of standard 2 by 4 1/4" size, protected by a cover glass. New spring clip fastening makes the lens easy to replace; no tools are needed.

• **HEADREST**, with cork sweatband for comfort, is of light, easy to clean plastic, and is readily adjusted to any head size. Spring, concealed within telescopic arms, holds goggle snugly against the face. Hinged from opposite sides, weight is evenly distributed.



JACKSON UNIGOGGLE type W-60, shown above, has plastic headrest, telescopic arms.

JACKSON UNIGOGGLE type WR-60, shown at left, has same eyecup and choice of lens shades, but is held against the face by an adjustable, elastic headband.



Goggle fits cheeks and forehead snugly, gently, with wide rim for comfort.



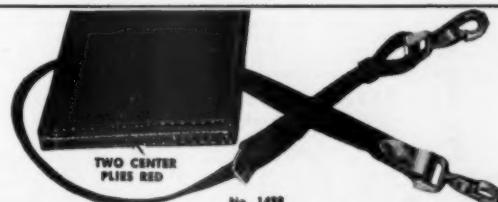
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Widths: 1", 1 1/2", 2", 2 1/2", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 22", 24", 26", 28", 30", 32", 34", 36", 38", 40", 42", 44", 46", 48", 50", 52", 54", 56", 58", 60", 62", 64", 66", 68", 70", 72", 74", 76", 78", 80", 82", 84", 86", 88", 90", 92", 94", 96", 98", 100", 102", 104", 106", 108", 110", 112", 114", 116", 118", 120", 122", 124", 126", 128", 130", 132", 134", 136", 138", 140", 142", 144", 146", 148", 150", 152", 154", 156", 158", 160", 162", 164", 166", 168", 170", 172", 174", 176", 178", 180", 182", 184", 186", 188", 190", 192", 194", 196", 198", 200", 202", 204", 206", 208", 210", 212", 214", 216", 218", 220", 222", 224", 226", 228", 230", 232", 234", 236", 238", 240", 242", 244", 246", 248", 250", 252", 254", 256", 258", 260", 262", 264", 266", 268", 270", 272", 274", 276", 278", 280", 282", 284", 286", 288", 290", 292", 294", 296", 298", 300", 302", 304", 306", 308", 310", 312", 314", 316", 318", 320", 322", 324", 326", 328", 330", 332", 334", 336", 338", 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repair protective clothing. This means that each worker should have at least two sets.

Protective clothing should be made of materials which will keep irritants from touching the skin. It should be of material impervious to the irritant. Rubber and plastics may be necessary.

Protective clothing includes gloves, respirators, gas masks, sleeves, aprons, coveralls, shoes, caps, face and eye shields, etc. Workers should be instructed to wear protective clothing when exposed to potential irritants or poisons. Respirators, gas masks, etc., should be inspected daily and kept in good working order.

Clean Work Clothes

In occupations where workers have their work clothes much soiled with irritants, it may be necessary to provide them daily with clean work clothes, even including underwear, socks and boots. In such cases, two separate locker rooms are necessary. One for street clothes and one for work clothes.

Protective Ointments

These do not give as positive protection as protective clothing, but in some instances are the only practical method of prevention. The work must often be done with the bare hand; the face cannot be covered by adequate face shields, as for instance in dusty operations, or in a misty atmosphere where the face shield becomes befogged and vision is impaired.

The use of protective ointments encourages washing because the worker always washes them off before going home and thus removes irritants from the skin. Protective ointments form a film or coating on the skin, making it more difficult for the irritant to contact the skin.

Protective ointments should be so formulated that they are impervious to the particular irritant. There is no one ointment which is the best protection against all irritants. However, lanolin is the best all around protective ointment.

Protective ointments may be divided into 2 large groups.

1. Water repellent
2. Oil repellent

Each of these may be subdivided into (a) dry film type and (b) oily film type.

In addition to these groups there are special ointments on the market for protection against solar radiation, poisonous plants, flash burns and insects.

Space does not permit going into the detail formulation of these ointments, but they should all have certain common properties.

1. They should be non-irritating.
2. They should give actual protection as shown by laboratory tests.
3. They should be easily applied to the skin.
4. They should not be easily removed under working conditions, but easily removed when the worker so desires.

When protective ointments are to be used, they should be furnished freely by the management and the workers should be instructed to use them frequently, washing off the old film before applying the new.

Washing Facilities

Strategically placed and adequate washing facilities are important preventives of occupational dermatitis.

In occupations where workers frequently have their hands soiled, wash basins should be within walking distance from the job. A wash stand at every 100 feet means that no one has to walk more than 50 feet to wash soiled hands. Hot and cold water should be available as should proper skin cleansers and individual towels.

Where showers are necessary after work, there should be an adequate number so as to avoid undue delay in going home. Hot and cold water, soap and towels should be supplied. The floors of the showers and locker rooms should be kept clean by washing and with an antiseptic solution after each shift.

Industrial Skin Cleansers

These should be furnished by the management. Soap in some form is suitable to remove ordinary soil from most skins.

To remove certain types of soil may require special cleansers.

Certain types of skin will not stand ordinary soaps and special cleansers are available for such workers.

Liquid soaps are sufficient for ordinary office workers and for others where hands are but little soiled by their work. Lately, harmless antisepsics have been added to liquid soaps. A non-irritant form of iodine is the latest of such antiseptic skin cleansers.

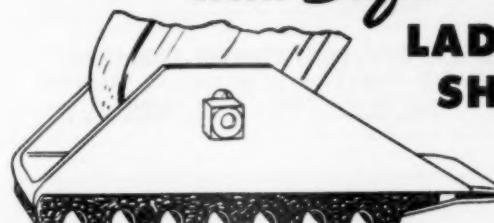
Where the hands are much soiled, powdered industrial cleansers containing scrubbers should be used. Where tenacious soil is to be removed, the powdered cleanser should contain an insoluble non-irritant, non-abrasive scrubber.

Powdered cornmeal answers this purpose. Scrubbers soluble in water soon go into solution and their scrubbing action is all too brief.

Some industrial soaps contain fatty ingredients such as lanolin, lecithin, etc., to temper the defatting action of the soap. Some also contain anionic and non-ionic detergents to aid in the removal of soil and to make the cleanser more effective in hard waters.

For workers whose skin cannot

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peratures up to 160° above zero. Think of the savings these features give you! No heated cabinets. No freezing of unprotected extinguishers left outdoors in winter weather. No accidental discharge due to exposure to high temperatures in a boiler room, etc. Still Ansul gives you the best fire protection money can buy.

SEE PAGE 15

tolerate soap, the sulphonated oils are available. They are efficient soil removers and well tolerated.

The other synthetic detergents may be divided into 3 large classes, (1) anionic, (2) cationic, and (3) non-ionic.

They may be prepared in any desired pH, and will cleanse in hard and soft waters. They lower surface tension, emulsify oils and greases, penetrate skin folds and cracks, thus making efficient cleansers.

The anionic and non-ionic are miscible with soap and may be a desirable addition to it. The cationic are not miscible with soap nor with the anionic detergents. The cationic detergents as a class are more allergenic than the others, but certain of them are not. The cationic detergents have some bactericidal and fungicidal properties.

The non-ionic as a class are the least irritant of the synthetic detergents.

Before purchasing an industrial cleanser, the agent should determine the one best suited to remove the particular soil without injuring the skin.

Industrial cleansers should have the following properties.

1. They should be freely soluble in hard, soft, cold and hot water.
2. They should be agreeable to use.
3. They should cleanse the skin without harming it.
4. They should not contain harsh abrasives.
5. They should flow easily through dispensers.
6. They should not become infested.
7. They should not clog plumbing.

Education of the Worker

The worker should be educated as to the health hazards of his particular job and how to avoid them. This can be done by management, but better still by the unions.

An analysis of the health hazards of each particular job and each machine should be made and directions how to avoid them should be printed on placards. The placards should be placed on the work tables or on the machines where the worker cannot help but see them.

Pre-placement Examinations

Applicants for work who have

skin diseases or abnormal skins should not be placed on jobs where there is a marked skin hazard.

Some dermatologists advocate the substitution of non-irritant chemicals for those that prove to be irritants. This, of course, would be ideal, but has been found possible only in a few isolated instances.

The incidence of occupational skin diseases can be greatly reduced by the measures outlined above, but cannot be entirely eliminated. Allergic individuals are always with us.

Safety Program

—From page 44

gram dealing with attitudes, we covered the following points:

1. Interest groupings;
2. Major problem;
3. Reasons for large company cooperation;
4. Small plant reactions;
5. The safety man on the association staff.

We hope the effects of our program will not only attain our objectives, but will also be looked upon as a long range or permanent function of the association. We would like to see the members look upon the program as non-imposing, but rather a stimulant for sincere activity with the staff man a guide.

Careful thought has been given to the idea of holding to a minimum the individual consulting the staff man should do. Such activity would limit his services to the membership as a whole.

Along with adequate records for direction of future activities, it is hoped that these records will be suitable for classification of the industry in the annual reports of the National Safety Council and the Bureau of Labor Statistics.

A summary of the entire program will show it was based on factors which would not require a too elaborate presentation. We merely took into account the following: 1. Need; 2. Objectives; 3. How; 4. Aid; 5. Attitudes; and 6. Effects.

I would like to express our thanks to the National Safety Council staff for the time and materials made available to us during

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Joint Safety Board

—From page 23

workers employed by each undertaking. Special rules exist for the purpose of securing for the safety representatives the right to perform their duty without hindrance by the employer or anyone else.

Against this are certain requirements concerning the qualifications of the representatives. The rights and duties of the representatives are regulated in regard to the manner in which criticism concerning safety and health devices may be submitted to foremen and employers. They establish the presence of safety representatives at inspections and investigations. Compensation for wages lost is regulated, etc. Finally, the regulations contain provisions concerning safety committees; these committees have been made obligatory in undertakings of a certain size, and certain rules have been laid down as to their composition and duties.

However, it was found necessary to establish a central organization, a contacting body, with the function of keeping in touch with developments in this field, and especially ensuring that the regulations are not merely accepted but also put into effect. This organization—the Joint Safety Board—consists of two members from each central organization and also one representative from the foremen's central organization.

Since 1945 the Joint Safety Board has been conducting its activities through a bureau of its own, the expenses of which are shared equally by both parties of the labor market.

The Board's first duty is to watch the application of the rules to promote improvements in safety measures. The number of safety representatives is now six times greater than in 1942. The safety committees are working more and more effectively.

The Board got 400,000 crowns (about \$100,000) from the Swedish Government and permission to launch a national safety program. The program was to be carried out in a short time. Newspapers over the whole country had big advertisements and articles on safety. New posters were distributed free of charge, and meetings were arranged, sometimes with governors as speakers. Lectures were given by employees, foremen and workers.

In 1950 a campaign was launched through the country on the subject of the responsibilities of foremen to safety matters. The Board got money from the government. Many hundreds of meetings were arranged by the Swedish Union of Foremen. At one safety meeting in Stockholm 2000 foremen were present and speeches were delivered by leaders of the principal organizations.

The Board arranges study courses in safety for employees, foremen and workers. The education program is extensive.

One safety film, *Health and Happiness*, has been shown before millions of workers and their families. That film has been translated into Danish and Finnish.

By the end of this year two handbooks will be published—one for personnel rooms and one for protective work.

In cooperation with the Swedish Red Cross the Joint Board proposes to organize first-aid courses at all workplaces. The average duration of such courses will be twenty hours.

This agreement has crystallized out of our contract with the workers. The agreement is not a part of the contract but it has given to the contract sensation of humanity and mutual participation.

If people succeed in cooperating on one point, they are ready to broaden the field of cooperation. This leads naturally to the need for further cooperation.

Cooperation on safety measures as developed in Sweden constitutes the very foundation for intensification of individual initiative on both sides. Without being suspected of ulterior motives the employee is entitled to give advice while the employer retains the right of exercising control of the employee in his attitude to safety work. There are certain matters, however, such as the final preparation of safety regulations for workers, of safety regulations for workplaces, of instructions to foremen, and the question of medical care, which cannot be settled wholly on a cooperative basis. In respect to such matters the entitlement to do the necessary work remains with the employer.

The safety measures required at workplaces in Sweden in the 1940's were different from those previously obtained. This new development progressed particularly in the major industries on general principles, which had been laid down and are now being adopted more and more, even in small industries.

The number of reported accidents has increased out of proportion to the workers employed. The major rises have coincided with increases in the rates of sick pay. The incidence of fatal and serious accidents has continually fallen. We have in Sweden an up-to-date workmen's protection act, framed in great detail with respect to legal working and motivation. The rate of compensation provides in the main that a worker absent due to an accident at work will receive benefits nearly equal to his ordinary earnings. In consequence of this high compensation, there has been a substantial rise in the number of accidents involving less than one week's absence from work. It is unnecessary to point out the serious effects on production which followed such a situation. On the other side, interest of safety work is intensified.

Even though cooperation in safety is neither new nor unnatural, the Swedish pattern differs from others in that its approaches have been made particularly firm.

The workmen's protection act in Sweden today includes detailed provisions on cooperation. These provisions are not legally enforce-

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able; they are, however, accepted as being morally binding. Behind the new legislature lies the voluntary agreement between employers and workers which is designed to emphasize the necessity of bringing about or strengthening measures.

Safety measures never can be really effective without discipline, and in fact, cooperation enables the workers themselves to discharge the obligation of requiring discipline in their own ranks. Representatives of labor have often pointed out that without discipline the machinery of production cannot function.

The ideal state of affairs has yet to be reached in Sweden. In many quarters the old view still prevails that safety work can be pursued spasmodically and without the unity and attention characteristic of productive work. Officials originally appointed solely to supervise the safety work in a company, or officials whose principal function it is to supervise such work, invariably become burdened with such other work as time studies, leadership of home guard units, the carrying through of instructional schemes, etc.

It is nevertheless clear that in cases where safety work is conducted by a person appointed for such work in workplaces subject to systematic control, safer working conditions are secured and accordingly workers get incentive to stay on their jobs. This is an exceedingly important consideration in Swedish industry today, because the unemployment in the 1930's has been followed by full employment and an acute shortage of labor, with all the repercussions that this entails.

Our latest statistics show that in industry the accident frequency varies to an extraordinary high degree in the different plants.

In some cases there have been no accidents in the course of a year. The textile industry for the year of 1947 had an average frequency of 3.3. Many of the plants in this industry had no accidents that year but one had a frequency of 23.5.

The procedure requires that such matters be discussed by the cooperating parties with a view to

agreement on the steps taken to reduce accident frequency.

Concerning safety work at present in the Swedish pulp industry our safety program included the following activities:

Comprehensive investigations of hygienic conditions and the incidence of occupational diseases. The costs of these investigations were checked by the employees. The investigations were carried out by persons with the best theoretical and practical experience. A report of the investigations has been printed and copies were sent to all mill managers in the industry. When the managers and the engineering staffs of the mills have studied the report, conferences are held in different districts to study the problems. Later the organizations, in cooperation with officials of the factory inspectorate, had to decide on the steps to be taken by the mills for the taking of adequate measures to provide for health protection. The trade unions are in agreement with the employers as to the method of handling this part of the program.

In the earnest endeavor to establish compulsory safety regulations emanating from the management, the basic idea has been to eliminate all intermittent work along such lines and to substitute accident prevention work of permanent nature.

The management is obliged:

1. To survey potential sources of accidents and the frequency of accidents.
2. To consolidate this information so as to know exactly what can be demanded of the workers in regard to safety questions.
3. To arrange that the accumulated knowledge should be made the basis of safety rules drafted so as to be readily understood by the workers.
4. To provide for the observance of the rules.

After collecting existing rules and possessing considerable information, ten technical men and a number of managers from the pulp industry discussed the possibility of drawing up safety rules applicable to the pulp industry as a whole. This resulted in rules for each department, dealing with the manufacture of pulp. Other rules were drawn up for complementary departments such as carpenter and machine, and electrical shops.

When these special rules were drawn up for various departments, general rules applying to all workers were first of all separated. Every worker was given these general rules. The aim was to cut down the special rules so as not to make them appear too detailed.

The special rules thus arrived at constitute norms which have been sent to the different mill managements. It is then their duty to use these rules as a guide in drawing up local rules for each department in cooperation with foremen and safety deputies approved by the employees. There is no doubt that the latter group is in a position to give valuable suggestions in regard to the rules and that is of advantage in the application of the rules that all groups feel necessary to their creation. The rules worked out for each department—sometimes after consulting main organizations—is a concentrate based on the experience in regard to accidents depending on mechanical or chemical reasons.

The observations presented here relate only to voluntary safety work in Sweden. I have not included the work of the factory inspectorate, which is responsible for enforcement of Swedish factory law, in the absence of which voluntary safety work would not be effective.

The effect of the combined efforts has been efficient in securing a high standard of safeguarding against accidents and ill-health and it is hoped that closer cooperation between the promoters of voluntary safety work and the government factory inspectorate will result in still higher standards.

It is obvious that the organization of industrial safety provides a highly suitable field for collaboration and mutual understanding not being a matter involving political considerations, industrial safety can be developed by intensive efforts which will result beneficially to both parties on the labor market to the community generally in increased production.

There is ample room for voluntary achievement of mutual understanding, when social legislation is being intensified and industrial democracy is beginning to assert itself successfully.



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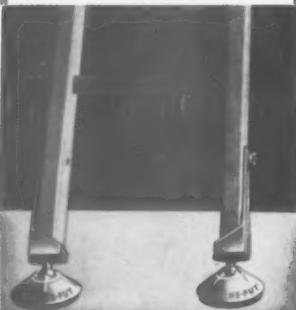
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High Voltage Testing

—From page 37

may be connected to the sparker to count or to mark faults, to sound an alarm, or to stop the machine.

9. The sparker may be mounted on a manufacturing machine to warn the operator to correct his process and to send the defective length for overhaul instead of further test. The 15,000 volt spark may also be mounted on a coiler to give a final check on finished wire which is being wound onto a reel or into a coil for shipment.

10. Careful testing at high voltages with safety and convenience requires elaborate equipment and setup. To build up high voltage with AC on a long length of large cable requires a generator and transformer capable of handling hundreds of amperes of charging current on the low voltage side. Production will therefore normally be brought to a central test area.

11. *Dry test.* Reels or coils of wire or cable may be tested dry on the floor or on a table, provided that the insulation has a metallic covering such as a lead sheath or a wire braid. The metallic covering is connected to a ground point by a small wire. High voltage from the test set is applied to one end of the conductor, thus creating a stress across the insulation from the conductor to the metallic covering. The free end of the tested conductor must be kept clear of any contact, to avoid flash-over. Failure in this test is shown by a sudden rush of current which opens the automatic circuit breaker and disconnects the test apparatus.

12. If the cable has two or more conductors, all of them except the conductor under test are connected to ground so that the stress is also applied between the conductor being tested and the adjacent ones. The test is made on each conductor in turn while all others are grounded. The ends of the conductor under test, and of the grounded conductors, must be

separated enough to avoid flash-over. If the conductors are numerous, they may be tested in groups.

13. This test may be carried out on the floor when the cable has no outside metallic covering. (See Figure 1.) In this case, the stress is only between the conductors.

14. The type of voltage, (AC or DC), magnitude of voltage, rate of rise of voltage, and duration of test vary over a wide range according to specification of the manufacturer, of the customer, or of such organizations as the Insulated Power Cable Engineers Association, the Underwriters' Laboratories, and the American Institute of Electrical Engineers.

15. *Water test.* When the insulation has no metallic covering, common practice is to immerse the reel or coil in a grounded tank of water (Figure 2) so that the water will penetrate between the turns of wire and provide a grounded contact for the whole surface of the insulation. The stress then occurs across the insulation between the conductor and the water. The free end of the conductor under test must be kept clear of the water. Other conditions are the same as in the dry test. Specifications frequently require a 12 hour soak. It is therefore customary to leave the reels or coils in the water overnight.

16. Safe set-up for high voltage test includes, first, barriers around high voltage equipment and around the material under test, so arranged that if the barrier is opened the test will be interrupted; second, proper grounding of high voltage equipment or of tested material as soon as the test is shut off, and also grounding of apparatus, of barriers, and of material adjacent to the test; third, close supervision of the test by the test operator or by another person who has authority to interrupt the test.

17. *Enclosed areas.* For regular testing, the setup should include two enclosed areas, one for the test equipment and one for the material to be tested. The test operator must be outside both areas.

—To page 103



Folder on Artificial Respiration

The article in the December NATIONAL SAFETY NEWS on artificial respiration by Floyd Van Atta, Director of Industrial Hygiene, National Safety Council, is now available as a special release.

The release discusses recent research on the effectiveness of various methods of artificial respiration, and describes in detail the techniques of the two methods found most effective—the Back-Pressure, Arm-Lift method and the Back-Pressure, Hip-Lift method. Photos showing the methods being used are shown.

The release has been printed so that the photos and instructions for these two methods can be detached and posted on the bulletin board.

Single copies are free to Council members. Write for quantity prices.

Safetygraph on Liquid Chemicals

Chemical Spills and Splashes is the newest title in the Industrial Department's popular series of safetygraphs on worker safety.

This safetygraph uses large, detailed drawings in two colors to illustrate safe handling of chemical containers, what to do in case of spills, proper protective clothing, and first aid and rescue.

The text on the back of each page suggests where demonstrations should be made and indicates the subject matter that should be discussed by the group.

Space is provided for writing in the names and hazards of the liquid chemicals used in individual plants, and a list of the 30 widest used liquid chemicals and their hazards is provided for the leader's use.

Illustrations and text cover such

subjects as: health hazards of liquid chemicals; protective clothing for handling liquid chemicals; importance of proper identification of chemical containers; safe handling of drums, carboys, bottles, and test tubes; avoiding accidental mixtures; safeguards in working on chemical lines and tank cars; cleaning up spills; and first aid and rescue in case of chemical burns, inhalation, and accidental swallowing.

This safetygraph is a convenient, durable tool for instructing small groups of workers in chemical safety — whether handling chemicals is a major or incidental job function of workers.

Member price: Safetygraph 22, *Chemical Spills and Splashes*, complete with easel is \$14.55. Special discounts for quantity orders.

Employee Booklet on Rules

Steps to Safety, a 12-page, two color booklet on basic rules for working safely, is now available.

Written to cover the work situations in every plant, the booklet discusses such areas of employee responsibility as:

- Safe work clothing
- Proper care and wear of protective equipment
- Horseplay
- Safe use of hand tools
- Importance of plant housekeeping and fire prevention
- Safety around moving machinery
- Safety in using electricity
- Lifting safely
- First aid for all injuries

Whether a plant has its own safety rules book or not, *Steps to Safety* is an inexpensive way to refresh in the minds of the working force the first principles of accident prevention.

Member price: One to nine copies, 12 cents; 10 to 99 copies, 7 cents; 100 to 999 copies, 6 cents; 1000 to 4999 copies, 4½ cents. Special discounts on larger quantities.

Safe Practices in Box Manufacture

A photo story on safe practices in corrugated box manufacture which appeared in the December 1951 issue of *Boxboard Containers* magazine is now available as Safety Reprint, PP3.

The photos were taken at the Chicago Plant of the Stone Container Corp. (winner of first place safety award in 1950) by representatives of the National Safety Council. Specially built safety devices and safe practices in box manufacture are shown. In addition, examples of unsafe practices (posed for illustrative purposes) are shown.

Member price: Single copies of Safety Reprint PP3 are free to Council members.

Hydraulic Lift Dolly

Detail Sheet 13 shows plans and materials needed to build a hydraulic lift dolly. Designed originally for lifting paper rolls, the dolly is adaptable to any industry in which cylindrical materials are handled.

Single copies of Detail Sheet 13, *Hydraulic Lift-Type Dolly* are free to Council members.

Safety in the Schools

Industrial safety men interested in community safety, in accident prevention in schools, or who have children of school age may want to see some of the following publications of the School and College Division of the National Safety Council.

Safety Education Data Sheet No.:

- 57—*Safety in the Auto Shop*
- 56—*Welding and Cutting Safety*
- 55—*Motor Vehicle Speed*
- 33—*Traffic Control Devices*

Safety Education Reprints—*How to Train the Child Pedestrian?*

Bomb Danger Entails Three Responsibilities

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Pupil Teachers Do Well in Driver Education

Member price: Safety Education Reprints and Data Sheets are 17 cents per copy. Quantity prices on request.

safety

POSTERS



9510-C

25x38

Above new "C" poster, issued monthly, is indicative of the other two color posters—shown in black and white on the following pages and in the 1952 Poster Directory.

ABOVE is a reproduction of the 1952 Directory of Occupational Safety Posters—copies of which have been mailed to all National Safety Council industrial members. This new Directory contains miniatures of 744 posters—top-notch selections on a great variety of subjects. Additional copies are available at 50 cents each, by writing the Membership Dept., N.S.C.

Posters miniatured on this page and the two following are NEW—produced for the first time this month. Excepting the Jumbo poster (below, left) all will be in stock throughout 1952. The posters shown in black-and-white on the two following pages are actually printed in two or more colors.

MAKE THE MOST OF YOUR POSTER SERVICE by selecting from the brand new posters shown on these pages each month and from the hundreds of illustrations in the 1952 Directory.



JUMBO POSTER for MARCH 1952

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 7' 8".

Electrotypes of poster miniatures on this page are not available, nor can payroll inserts be supplied.

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9497-A

8½x11½

This new four color poster is illustrative of the 72 four color posters shown in the 1952 Poster Directory.

Posters below are printed in two or more colors
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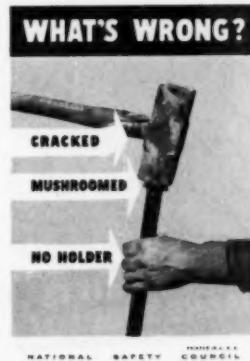
9474-B

17x23



9502-A

8½x11½



9437-A

8½x11½



9457-A

8½x11½



9509-A

8½x11½



9438-A

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9484-B

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9460-A

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9503-B

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Electrotypes of payroll inserts can be furnished on all poster illustrations shown above.

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9348-A

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NATIONAL SAFETY COUNCIL

9432-A

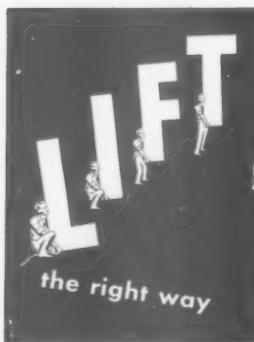
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NATIONAL SAFETY COUNCIL

9448-A

8½x11½



NATIONAL SAFETY COUNCIL

9498-A

8½x11½



NATIONAL SAFETY COUNCIL

9481-A

8½x11½



NATIONAL SAFETY COUNCIL

T-9470-B

17x23



NATIONAL SAFETY COUNCIL

V-9505-A

8½x11½



NATIONAL SAFETY COUNCIL

V-9506-B

17x23



NATIONAL SAFETY COUNCIL

V-9504-A

8½x11½

Electrotype of payroll inserts can be furnished on all poster illustrations shown above.

High Voltage Testing

—From page 98

These areas should be separated from one another and from the outside by well grounded metallic fences. Warning signs indicating high voltage should be installed.

18. Openings in the fences should be protected by gates with electrical interlocks acting through the control circuit of the test apparatus. In a less permanent installation, the test area may be enclosed by movable metallic screens or panels, but to prevent entrance of persons during the test, a positive barrier should be established by electrical interlocks which will interrupt the test if an opening is made in the barrier. (See Figure 3.)

19. The test operator himself must be outside the testing area during the test. He handles only the control current at 110 or 220 volts. All switches on the testing circuit are in the equipment enclosure and are remotely operated by the control current. The equipment enclosure must be protected by interlocks on the gates to prevent the operator from entering unless the test voltage is off.

20. Frequently two or more test areas are served by a single set so that testing can be done in one area while preparatory work proceeds in the next one. Sometimes an area remote from the test set must be used. For instance, when reels weigh 10 or 20 tons, or cable is coiled in tanks, it is necessary to bring the test to the cable instead of the cable to the test.

21. Use of overhead structures. Since it is inconvenient and hazardous to use a long lead wire on the floor between the test set and the material to be tested, an insulated structure of brass pipe or similar material may be erected over the test area about 10 feet from the floor. The test equipment is connected to the overhead structure. A short test lead is hooked to the overhead structure and then connected to the wire or cable to be tested. (See Figure 4.)

22. Another method is to make the overhead structure of tightly

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stretched insulated wire. The insulation is cut away at frequent intervals to uncover 2-inch lengths of bare conductor to which the lead can be hooked.

23. Where there are two or more test areas, the overhead structures serving them should be entirely separate electrically so that only the structure over the area in which testing is in process will carry voltage.

24. A rotary selector switch inside the test equipment enclosure may be used to apply voltage to only one overhead structure at a time, all other overhead structures being simultaneously and automatically connected to ground by another set of low voltage contacts which automatically close the protective gate circuit on the area where the test is being made, but leave open the gate circuits on all other areas.

25. *Remote test area.* Where a test area remote from the test set is used, a spring-opened switch in the control circuit of the test apparatus should be located so that the test supervisor has an over-all view of this area. The supervisor of the test, or other designated person, must hold this switch closed to permit the test. Thus the test operator cannot apply the voltage unexpectedly and the test can be interrupted instantly in case of danger. Permanent or movable barriers are also needed.

26. *Grounding of equipment and material.* Before high voltage equipment is handled (for example, to make a change of connections), it is good practice to hang a ground stick on the equipment. A ground stick is a short wooden stick with a metal hook on one end. The hook is connected to a few feet of insulated wire, and the wire is connected to a grounded object either permanently or by means of a spring clip. The stick is easily seen and is an additional assurance that the equipment is safe to handle. In a remote test area, the ground stick is especially important to assure "voltage off." Grounding is particularly necessary in DC testing.

27. *D. C. testing.* A direct current voltage test is made by adding

a rectifier in series with the transformer. This test is commonly used on insulated wire or cable designed to operate on 5000 volts or more. The DC test voltage is 2 to 5 times the corresponding AC voltage, depending on the character of the insulation. The DC test is very searching but is more dangerous and less convenient to use because the electrical charge on the length of wire or cable must be drawn off after the test. With AC, the frequent reversals of current prevent accumulation of the charge.

28. During a DC test the conductors on nearby reels or coils must be connected to ground to prevent these lengths from accumulating a partial charge. The tested length must be discharged for several minutes, perhaps up to 60 minutes for safety or considerably longer for complete protection. Otherwise the charge will slowly reappear when the ground connection is removed and may give a startling shock. Time of discharge varies with the time and magnitude of the test voltage and with the size and length of the wire or cable. (See Figure 5.)

29. A safe procedure is to arrange the test set so that the test lead is connected to ground automatically as soon as the voltage is shut off. While this ground is maintained, another connection of the cable to ground can be made with a piece of fine wire. The test lead then can be disconnected from the cable. It is good practice to maintain the connection to ground until the cable must be moved or tested again, preferably the next day.

Testing crew

30. *One man.* Moderate voltage tests (up to 5000 volts) may be made by a single man where volume of work is small and tests are brief. A man may put a few small coils in a pan of water, connect the coils at one end, connect the test lead wire to the grouped ends, step to a control table a few feet away, make the test, then return to the pan, separate the coils and place them on a truck or conveyor.

31. Two precautions should be taken. First, the area should be

When you have a Guard Problem-

enclosed to prevent entrance by other persons. Second, the operator should use a spring-opened switch which he must personally hold closed throughout the test in order to keep him in a safe position.

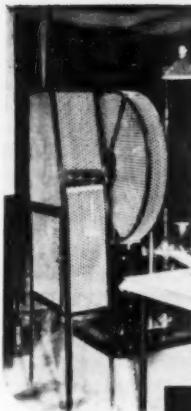
32. *Two-man crew.* When wire must be soaked in water overnight, it is customary to place a large number of reels or coils in one or more tanks and to test the whole lot the next morning. There may be 100 tests in the lot. It may also be necessary to keep a record of each reel or coil by description and order number.

33. For rapid operation, two men, an operator and a hook-on man, should make such tests. The operator at the control panel should be able to see the hook-on man clearly. If there is more than one test area, the operator may be elevated to secure a good view. Another scheme is to have a portable control panel outside the test area. The panel may be moved to the most convenient position and the control and instrument circuits may be connected by a plug-in arrangement. The hook-on man transfers the test lead from one length of wire to another between tests. He reports a description of the wire to the operator who keeps the record. He also reports if the test is terminated by a flash-over at the ends instead of by a fault in the insulation.

34. The two men must work according to a firmly established procedure. They must have reliable communication by signal, voice, or electrical means so that the operator will know when to apply the voltage and the hook-on man will know when the voltage is off.

35. For tests on small wire at less than 7000 volts and lasting 10 to 60 seconds, it is permissible for the hook-on man to handle the test lead and its hook by means of an insulating stick. He may keep his hand on the stick during the test in order to shift the lead quickly to the next length of wire.

36. During the test he should be required to hold onto a rope attached to a spring-opened switch



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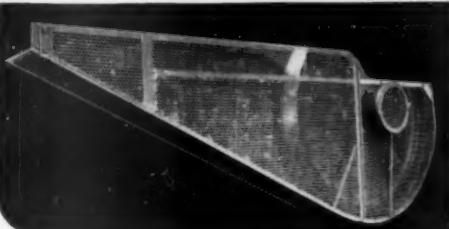
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in the control circuit with his free hand. Tension in the rope holds the switch closed. The rope should be located to keep the man's hand well out of danger and to require him to step back from the wire under test. Use of the rope also prevents the test operator from applying the voltage when the hook-on man is not ready.

37. For tests with over 7000 volts and for tests longer than one minute, the hook-on man should retire from the test area during the test. Tests with the higher voltages may last 5 to 15 minutes.

38. A green light to indicate "voltage off" is helpful. A red light to indicate "voltage on" should not be used because its failure would be dangerous. Visual indications are not reliable protection.

Field testing

39. Public utilities customarily require an acceptance test on installed cable with service rating of 4000 volts or more before putting it into service. This test will show up poor splices, poor terminals, and damage to the cable. Such users also frequently require proof tests after putting the cable into service, either, because they are suspicious of the condition of the cable or to check periodically on deterioration.

40. High voltage testing of installed cable is nearly always done with direct current because the gradual build-up of the electrical charge permits the use of light and portable equipment. Also, the low power of the equipment prevents severe burning at the fault. Burning destroys evidence of the character or cause of the fault.

41. *Megger test.* If the cable may fail on test and cannot be kept out of service long enough to be repaired, a preliminary test may be made with a 1000-volt megger. This is a hand-cranked machine for generating DC voltage, with a built-in bridge for measuring the flow of current which represents the rate of leakage of the cable insulation.

42. *Higher voltage test.* If the megger test is satisfactory, a

higher voltage test can be made, up to 70,000 volts, by a transformer and rectifier set, which can be carried in an automobile, or up to 140,000 volts by equipment which can be carried on a truck. The voltage is raised by steps, so that the flow of charging and leakage of current can be noted at each step. When the specified voltage is attained, it is held for 5 to 15 minutes while readings of the current are made at short intervals.

43. With each step-up of the voltage there will be a flow of charging current into the cable. This flow usually drops to a low value after a few seconds. Sometimes the current is better sustained. Steady of the current at a value higher than that found on a previous test may indicate deterioration. If the current rises while the voltage is constant, impending failure is indicated. The user can then decide whether the weak spot should be broken down, located and repaired immediately, or whether the cable should be put back into service until a more opportune time.

44. *General precautions.* A field test may have to be made under difficult conditions, for instance, on a busy city street. The far end of the cable may be a mile or more from the test set. The cable is usually on poles or in underground ducts. It must be completely disconnected from the rest of the power system. If it has a metallic sheath, this sheath should be grounded.

45. Before making a test, the operator should check over the installation so that he will know the conditions he is facing. Check-up should include these points:

- a. Means of disconnecting the cable from the power system to make sure that the test voltage, which is several times the operating voltage, will not cause leakage or flash-over across the gap.
- b. Voltage rating of equipment or fittings attached to the cable to make sure of the test voltage which they can safely carry without leakage or flash-over.
- c. Separation of pole type disconnects and lightning arresters from the cable to prevent leakage and flash-over.

d. Separation of instrument transformers from the cable to prevent damage to them.

46. The vehicle carrying the test set must be well grounded, to a hydrant or to the cable sheath. This connection must be strong enough so that it cannot be easily broken.

47. The operator should wear rubber gloves (10,000 volt rating) while operating the set.

48. If any of the high voltage equipment must be placed outside the vehicle during the test, a barrier with "Danger, high voltage" signs must be placed around it.

49. The high voltage lead wire may be 100 feet long and is usually laid on the ground. This wire is insulated and is also protected by a metallic shield so that if a failure occurs in the insulation, the fault will be immediately grounded. Although this shield should make the wire safe, it is customary to warn persons away during tests. Enough men and barriers must be on hand to keep bystanders at a safe distance.

50. An excellent safety feature of the test apparatus is a magnetic switch which will instantly open the test circuit and connect the cable to ground when the test is completed or is interrupted. This switch must be manually closed before another test can be made.

51. Maintenance men must be warned to keep off poles and out of manholes during the test.

52. The far end of the cable and intermediate branch connections must be thoroughly guarded. Minimum protection is to place a reliable man at the far end of the cable with instructions to keep all persons away from it until he is relieved. Communication with the far end of the cable is desirable. A field telephone may be used, but if the distance is long, local permanent telephones in stores or houses may be used instead. Two way radio in automobiles is excellent.

53. The control circuit of the test apparatus should include a spring-opened switch to provide for quick shutdown in case of dan-

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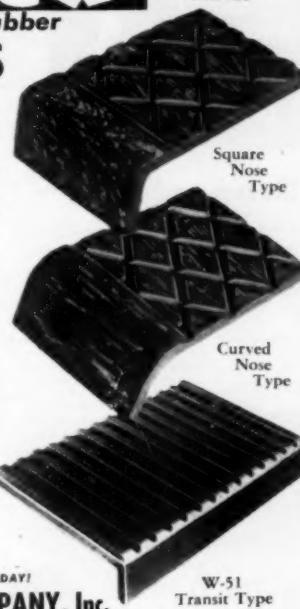
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ger. This switch should be held closed throughout the test by an assistant who watches out for trouble.

54. When it is necessary to take the test lead into a switch or terminal house and to make connections to the cable out of sight of the test car, a 6-conductor control cable can be carried in with the test lead. This control cable includes a circuit for a spring-opened switch, a circuit for telephone, and a circuit for signal lights. Lights should shine only when voltage is off.

55. Two men are assigned to make connections first to one conductor, then to another, and to guard the connections during the test. The spring switch is located at a safe distance from the cable terminals, and one man must hold the switch closed to permit the test.

56. Power circuits are usually three phase. The test is usually made on one cable with three conductors or on three separate cables forming a circuit. The conductors not under test must be carefully grounded. When the test is completed, the tested conductor is automatically grounded at the test set, but another ground connection must be made to the conductor before the test lead is disconnected.

57. An assembly of four ground connections is helpful, one for the shield on the test lead, two for the conductors not under test, and one for the conductor on which the test has just been completed.

58. Short lengths of cable can be discharged in a few minutes; long lengths will require an hour or more. It is good practice to maintain the ground connections until the cable is about to be connected for service.

59. If a fault occurs on an overhead cable without a lead sheath, it may be located by burning with controlled current until smoke appears.

60. On an underground cable with lead sheath a signal can be put on the cable by the rapid discharge of a condenser between the faulty conductor and ground. This signal can be traced to the fault by a portable listening device aboveground.

61. If these means fail, the fault can be located by measurements with a bridge. All these methods use high voltage and require the same precautions as those used on the high voltage test.

ACKNOWLEDGMENT

The first draft of this data sheet was prepared by Clifton N. Fogg, safety engineer, Simplex Wire & Cable Company, and member of the Executive Committee, Electrical Equipment Section, National Safety Council, and reviewed by F. T. Clarke, chairman, Engineering Committee. The final draft was prepared by George MacDonald, staff representative, Electrical Equipment Section, reviewed by the Safe Practices Conference Committee, and approved by the Industrial Conference of the Council.

**Calendar Contest Winners
for December**

First prize in the National Safety Council's Safety Calendar Contest goes this month to Mrs. H. W. Guenther of Tahlequah, Okla. The theme in this contest was poor planning causes accidents. Mrs. Guenther's limerick line was adjudged best of all those submitted. It is:

Neither scanned, planned, or manned
with foresight.

Second prize went to Mrs. Caroline E. Wilson of Charlotte, N. C., for this limerick:

Almost safe's just the same as not
quite.

Third prize was awarded to Tharel L. Wheeler of Oceanside, Calif., an employee of American Potash & Chemical Corp., for the following limerick:

Like an obstacle course in the night.
Thirty \$5 awards were issued to:
Mrs. M. J. Ballentine, Spokane, Wash.
Floyd Snyder, Steelworker, Bethlehem Steel Co., Bethlehem, Pa.

Mrs. O. P. Collum, Corpus Christi, Tex.

Mrs. Orpha R. Rhodes, Berkeley, Calif.

C. S. Holden, Asst. Supervisor, New York Central RR Co., Cleveland, Ohio.
J. Edward Hakes, Kalamazoo, Mich.
Mrs. Lois Pasley, Falmouth, Mass.
Mrs. Ned Fish, Columbia, Mo.
Mrs. Fray Morrison, Anacortes, Wash.
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H. G. Hoar, San Diego, Calif.
Mrs. Beulah Lee Bush, Fort Thomas, Ky.

Edward Wargaske, Saginaw, Mich.
Mrs. John B. Mackay, Dallas, Tex.
Mrs. A. G. Dallman, National City, Calif.

Mrs. E. S. Veronee, Charleston, S. C.

Mrs. Lloyd O. Hanson, wife of Oliver Iron Mining Co. employee, Virginia, Minn.

Mrs. Daniel Homan, Denver, Colo.

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 Mrs. Dorothy Cannon, St. Louis, Mo.
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 Mrs. C. H. Stone, Macon, Ga.
 Mrs. D. C. Gruver, Edmond, Okla.
 Mrs. Abram Miller, Philadelphia, Pa.
 Stephanie Lang, Scarsdale, N. Y.

Film Outlines Plans For Disaster Control

DISASTER CONTROL is the title of a recent 16mm film by McGraw-Hill. Planning for protection against fire, flood, sabotage, the atom bomb and other catastrophes is treated thoroughly in this film.

The most efficient and economical way for top management to achieve this purpose, the film points out, is to make adequate plans for continuation of product flow and to make maximum use of existing plant personnel. The fire, security, health and communication facilities already organized in the plant may be used as the nucleus on which to build a disaster control organization.

Count on helping yourself, the film urges. Self help may be your salvation when disaster strikes, for outside agencies will be overwhelmed from calls for help in case of disaster.

Prime responsibility should be lodged in one key figure—the Coordinator of Plant Defense. This executive, along with his Deputy Coordinator, will control fire fighters, rescue workers, sabotage units, first aid squads and air raid warden services. He will direct their operations from a plant control center, set up in the safest area of the plant.

The film points out the prime importance of adequate communications systems—both a regular intercom system and a special emergency system that does not depend on outside source of power.

Disaster Control also points out specific dangers of blast or shock wave, heat wave and nuclear radiation, with protective measures.

Details may be secured from McGraw-Hill Book Co., Inc., Text-Film Department, 330 West 42nd Street, New York 18, N. Y.

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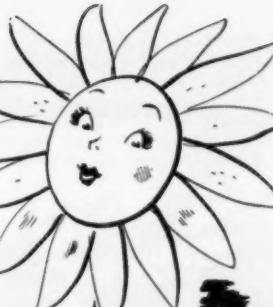
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THE LONG AUGUST NIGHT WAS HOT—but not as hot as the bitter fighting that raged about Agok, Korea, in the Naktong River area. Sergeant Kouma, serving as tank commander, was covering the withdrawal of infantry units from the front. Discovering that his tank was the only obstacle in the path of an enemy breakthrough, Sergeant Kouma waged a furious



nine-hour battle, running an eight-mile gauntlet through enemy lines. He finally withdrew to friendly lines, but not until after his ammunition was exhausted and he had left 250 enemy dead behind him. Even then, although wounded twice, he attempted to resupply his tank and return to the fighting.

"A withdrawing action is not my idea of how Americans should fight," says Ernest Kouma. "If we must fight, let's be strong enough to take the offensive. In fact, if we're strong enough, we may not have to fight at all. Because, nowadays, *peace is for the strong*."

"So let's build our strength—to keep a strong America at peace. You can help by buying Defense Bonds—as many as you can afford. It's far less painful to build for peace than to destroy in war. And *peace* is what you're building when you buy Bonds."

M/Sgt. Ernest R. Kouma Medal of Honor



Remember that when you're buying bonds for national defense, you're also building a personal reserve of cash savings. Remember, too, that if you don't save regularly, you generally don't save at all. So sign up today in the Payroll Savings Plan where you work, or the Bond-A-Month Plan where you bank. For your country's security, and your own, buy United States Defense Bonds now!

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NEW SAFETY EQUIPMENT FOR INDUSTRY

Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.



Steam Cleaner

A steam cleaner that works on any steam supply of 60 to 150 pounds pressure to remove grease and dirt from machinery, equipment, floors, etc., is announced by Hypressure Jenny Division, Homestead Valve Manufacturing Co., Coraopolis, Pa.



Known as Model F-15 "Fireless" Hy-Steam-Pressure Jenny, the new unit is said to clean eight to ten times faster than ordinary hand-cleaning methods. It mixes steam supply with pumped proportions of water and cleaning solution for cleaning, sanitizing, and deodorizing. Portable, the unit can be rolled right to the cleaning job. After connecting to steam and water supply lines, and 110 volt, 60 cycle AC lighting circuit, a flick of the starting switch produces from 45 to 90 gallons per hour of boiling hot chemical vapor spray, as desired by the operator. Where steam supply pressure exceeds 150 pounds, manufacturer advises use of a steam pressure regulator.

Unit, including 25 feet of vapor hose, cleaning gun with nozzle control system, and nozzles, weighs approximately 240 pounds; and measures 37" long by 27" wide and 37" high.

Germicidal Unit

Hanovia Chemical & Manufacturing Co., 100 Chestnut St., Newark 5, N. J., announce the development of a new explosion-proof germicidal lamp unit designed for use in hazardous areas, where ultra violet lamps are required for the control of airborne organisms.

The unit is designed for wall or ceiling mounting to furnish direct or indirect irradiation. Ultra violet energy is furnished by two hairpin-shaped Safe-T-Aire lamps.

Work Clothes

Work clothes made of the new Dynel fabric have been introduced by Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Pa. Called MSA ChemKlos, they are said to resist acids, caustics, wear, moths, mildew shrinkage, snagging and tearing.

Available in shirts, trousers, and coveralls, the garments offer protection and are comfortable and neat-appearing. They are easily cleaned by commercial dry-cleaning and washing solvents in concentrations hard on ordinary fabrics. Dynel fabric has been tested and proved inherently chemical-resistant. The resistant qualities are in the fabric itself, not added by a treating process. Complete details are included in Bulletin No. CF-28, which can be had from the manufacturer.

Safety Scoreboard

Industrial Products Co., 2850 N. Fourth St., Philadelphia 33, Pa., announces a new safety record sign. Designed to act as a constant reminder of days worked without a lost-time injury, it conveys the thought that responsibility rests with each and every employee.



The scoreboard is 20" wide by 30" high, large enough to be seen at a distance, and is attractively finished with green background and white letters. It features two blackboard finish panels enclosing the word "Days" so that it may be kept up to date by marking in with chalk. It is manufactured of 20-gauge metal and finished in baked dulux. It is suitable for both indoor and outdoor use.

Safety Hat

Standard Safety Equipment Co., 232 W. Ontario St., Chicago 10, is now offering

the Windsock—an expendable, lightweight, throw-away type head covering to be worn



under the safety hat. It is a warm, snug-fitting health protector that can be had in two ear-covering lengths—9 inches and 11 inches. The covering is particularly comfortable to those wearing a safety hat in winter.

Material Handling Containers

For handling precise and fragile parts Automotive Rubber Co., Inc., 8601 Epworth Blvd., Detroit 4, Mich., has developed rubber-cushioned handling baskets,



pans, spacers, chutes, hooks, racks, etc., making it possible to safely handle larger quantities of fragile parts faster and without slippage, marring and scratching. These containers give rubber protection using Arco's seamless dip process or sheet lining.

De-Icer

Normandy Chemical Corp., Muskegon, Mich., announces the Saif Ice-Master, a chemically treated wood-flake compound, which has just enough solvent so that the wood flakes embed themselves in ice or packed snow and give a slip- and skid-



NEW SAFETY EQUIPMENT FOR INDUSTRY

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

resisting surface. Advantage claimed by the manufacturers is that wood fibers absorb solution from the ice as rapidly as it is formed, then, as water evaporates from the flakes, more melting takes place until the ice is gone. Non-slippery condition is attained almost at once and does not depend on the complete melting of the ice.

The product is said to be non-abrasive, non-injurious, non-poisonous, and cannot injure metal, sidewalks, wooden floors, rugs, shoes, or clothing. Five pounds of Ice-Master are estimated to be equivalent to 50 pounds of sand.

Safety Valve

Ventadrum, a new safety valve designed to control and eliminate dangerous explosions caused by pressure expansions in 50-gallon metal drums, has been introduced by Central Safety Equipment Co., 2201 E. Huntingdon St., Philadelphia 25, Pa. Easily screwed into the bung opening of a universal type 50-gallon drum, the valve is one of the first such units to automatically function under 6 rapid-action principles.



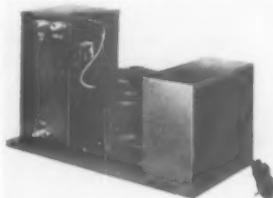
It permits air to enter the drum on contraction of liquid or while liquid is being extracted. It permits air to escape slowly during the expansion of liquid caused by normal temperature changes. It relieves excess pressure rapidly in the event container becomes involved in fire or quick temperature change, causing liquids to build up vapor pressure. The valve opens, jetting the vapors outward through six vents.

Ventadrum automatically reseats and shuts off vapor flow when pressure has been relieved. Integral fire screens prevent fire from traveling into drum. In the event container turns over, the valve automatically seals itself, closing-off all flow of liquid and vapor. The body of the valve is manufactured of bronze and contains 23 functioning parts, all set firmly in place requiring no adjustments or replacements throughout the life of the valve.

Water Cooler

A remote type drinking water cooler, designed to emphasize economy and versatility in installation, has been introduced by Temprite Products Corp., P. O. Box 72, East Maple Road, Birmingham, Mich.

Cooler and storage tank, compressor and condenser are mounted together on a sturdy metal base, and the unit may be



installed in practically any location where cool water is needed. It is only necessary to connect the water inlet pipe to the cooler, water outlet pipe to the separate fountain, and to plug in the power cord.

Models are currently available in 3, 5, and 10 gallon capacities, and small space requirements make them ideal for a wide range of applications. Each cooler can supply cool water economically to one or more existing wall fountains or bubbler.

Flooring Material

Worn, cracked, rutted and disintegrating floors of concrete, wood, asphalt and composition materials can be transformed into like-new condition with new, improved Roc-Wood.

Roc-Wood is a new development in flooring materials, the material composed of hardwood fibers chemically treated and bonded together with a plastic binder. The combination of wood, chemical and plastic results in a smooth, durable, skid-resisting floor. It will bind itself permanently to almost any sub-structure. It can be laid with a trowel, using pre-mixed ingredients, by inexperienced help. It hardens by chemical action and is ready for use within 24 hours. In appearance it resembles cork flooring and has a resiliency that reduces standing and walking fatigue. For further details write to Roc-Wood Flooring, 364 E. 23rd St., Chicago 16.

Fork Truck

Mobilift Corp., 409 S. W. 13th Ave., Portland 5, Ore., has added a new "H" series to their line of gas powered trucks. The 2-model series consists of a 3000 pound capacity "H" and the companion "HW"

3500 pound capacity. Both are stand-up type.

None of the maneuverability features of the smaller units has been sacrificed in the new heavier ones. The "H" series feature



the exclusive Lev-R-Matic drive, which gives the operator finger-tip, push-pull control of forward-back movement, tilting and elevating. A heavier duty multiple-disc clutch of the same design used in other Mobilifts smoothly transmits power without any manual gear shifting. The "H" model has an outside turning radius of 61 1/4 inches and zero inside turning radius, the length less forks is 71 inches, width overall 38 inches. The "HW" outside turning radius is 63 1/8 inches, zero inside turning radius, length less forks 73 1/4 inches and 38 inches over-all width. The new models are powered by 3 cylinder air cooled gas engines, with a governed speed of 6 MPH. Speed of lift loaded is 50 feet per minute.

Dust Collector

A low cost, self-contained dust collector, formerly available in direct drive for 50 or 60 cycle power, may now be ordered for operation on 25-cycle power. Introduced several years ago by Aget-Detroit Co., Ann Arbor, Mich. for use in collecting dust from sanders, saws, jointers, planers, etc., the Dustbuster has heretofore been restricted to operation on 50 or 60-cycle power. The previous design which also employs a paddle wheel, self-clearing fan, had been mounted directly on the motor shaft. Since the efficiency of the unit and the maintaining of its rated 650 cfm suction depends on a fan speed of approximately 3600 rpm, an overdrive was indicated for the lower frequencies. For operation on 25 cycle power, a V-belt drive through a counter shaft permits a fan speed of a nominal 3600 rpm.

The Model JS Dustbuster has a 1/3-hp,

NEW SAFETY EQUIPMENT FOR INDUSTRY



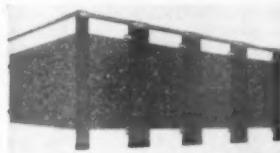
Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

continuous-duty motor mounted on a cabinet that encloses a caster-mounted, heavy duty trash can of 31 gallons capacity. The cabinet also has a frame, which is both a support and a filter shaker for an oversize cloth filter. The discharge from the blower is in such direction as to throw the heavier dust into the collecting can somewhat after the manner of a cyclone separator. The finest dusts are taken out by the filter and the cleaned air returns to the working space. Removal of the collected dust is quick and easy. A spring-supported cover for the trash removal can is secured by snap latches. These are unlocked and the can is wheeled away to the point of disposal. A hand shaker crank permits regular shakedown of the filter as required. The filter material is specially woven and treated for separating fine dusts.

ratings of the model taken with standard test instruments show 633 cfm on a 5 inch diameter inlet (equal to 4,800 rpm). Double 3 inch, single 4 inch and single 5 inch inlets are optional. Floor space required is 24 x 26 inches, the overall height 70 inches. The weight crated for shipment, is 260 pounds.

Non-Metallic Toilet Compartment

A solution to one critical materials problem is the development of non-metallic toilet compartments by the Sanymetal Products Co., Inc., Cleveland, Ohio. This new toilet compartment is a result of a



combination of several non-metallic materials that have been found particularly suitable for the construction of such a unit. Components consist of hardboard sheets cemented under pressure over solid insulation board with reinforcements for fittings and fasteners. Partition panels, pilasters and doors are flush type and pilastered to dimensions that comply with the modular system of dimensional coordination. Now available in three different colors, the finish simulates the appearance of metal.

Combustible Gas Alarm

Because of its explosion-proof construction, the new Johnson-Williams Model EE combustible gas alarm can be installed

directly in the suspected atmosphere, either indoors or out. Located in a bell-shaped cover housing, the sensing unit is weather-proof like all parts of the unit. By convection and diffusion, the surrounding atmosphere is subjected to a continuous watch against the build-up of any kind of explosive vapors.



Presence of vapor is signalled by a bright red indicator light as well as by remote alarm units of various types which can be connected to the terminals provided. While the standard alarm point is established at 0.2 of the lower explosive limit, other values can be provided where required. Either self-reset or lock-in arrangements can be provided to give either an on-off indication of gas, or one which must be manually reset. The sensing unit can be located remotely from the rest of the alarm if desired. The alarm contains no meters or meter-type sensitive relays, but utilizes an electronic trigger-tube circuit to convert the sensing-unit signals into alarm indications.

Features of the model make it applicable to pipeline pumping stations, liquefied-petroleum gas plants, and industrial and commercial areas where gas or volatile liquids are used, stored, or handled. Complete information may be had from Johnson-Williams, Ltd., 2618 Third St., Palo Alto, Calif.

Quick Setting Cement

Anchor bolts for permanently fastening machinery, hand rails, seats or equipment of any type to concrete, can be set easily, quickly and with safety by using Por-Rok quick setting cement manufactured by the Hallemite Manufacturing Co., 2446 W. 25th

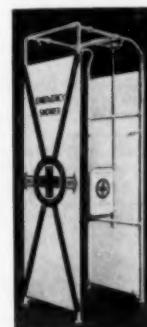
St., Cleveland 13, Ohio.

Por-Rok successfully replaces critical lead and sulphur for most bolt-setting operations. Applied cold, there is no heating hazard, and it forms a permanent weld-joint rapidly. To use, merely drill a hole, set bolt in place, mix Por-Rok with water, and pour into opening around bolt. Within 15 to 30 minutes the bolt is anchored permanently.

Por-Rok is self-bonding, self-leveling, oil-resistant, and will not shrink. It has compression strength of 4500 pounds p.a.i.

Emergency Showers

Logan Emergency Showers, Inc., Glendale, Calif., announces emergency or de-contamination showers designed to utilize modern techniques of spraying water to rapidly quench fire, or in a matter of seconds dilute and remove acids or other chemicals and foreign materials contaminating clothing or the human body. The new showers are offered in three basic models to meet the requirements of maximum, medium or minimum exposure. The model designed especially of maximum ex-



posure is designated as Series 5010. Ingeniously located sprays enable this model to instantly wet and wash all portions of the clothing and body. Tests with a high-viscosity water soluble test material show that all material is completely removed from all parts of the body, without rubbing, in only 15 seconds.

This speed is accomplished by locating the sprays so that all parts of the body are reached simultaneously. For example, in addition to the usual overhead sprays there are four bottom sprays directed upward to reach under smocks, coats, etc. Water directed in this manner assures



NEW SAFETY EQUIPMENT FOR INDUSTRY

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thorough wetting between the legs, under the buttocks and calves of the user. The feet are reached by four streams directed from holes at the base of the shower, which also act as drains. In addition two special sprays play on the eyes and face without interfering with sight or breathing.

This high-speed shower is built so that it can be entered from two sides and instantly activated by the slightest pressure on a gate which swings in either direction. The valve remains open after being activated until manually closed, thus leaving user's hands free. This shower is made for either inside or outside installation.

Only slightly less time is required for complete wetting by the Series 5026 Model. With this unit 28 seconds is required to remove a water-soluble test material from all parts of the body. Because of fewer sprays than used with the Series 5010 shower, this model can be entered from three sides.

To provide for minimum hazards a third type of emergency shower known as Series 5040, has been developed. In this unit all sprays are directed downward for instantaneous wetting and washing of the upper portions of the clothing and body.

In all three types high corrosion-resistant red brass is used for all functional parts. All models can be furnished in any metal and finish desired.

Portable Milk Dispenser

Vacuum Can Co., 19 S. Hoyne Ave., Chicago 12, announces its new AerVoid vacuum insulated portable milk dispenser for the transportation and direct service of cold milk from distributors' plants to large consumers such as industrial plants, schools, armed forces, etc.



It is made entirely of stainless steel with special faucet of dairy metal or

stainless steel and insulated like a vacuum bottle to provide, in combination, the maximum of durability, efficiency, sanitation and the least possible weight. It seals milk against air-borne and human bacteria, dilution, contamination and steaming. This self-contained unit eliminates the bottle or container problem.

Scaffold

A light-weight, walk-through scaffold end frame, designed for use by the plastering and stucco trades, has been placed on the market by Wilson-Albrecht Co., Inc., 3565 Wooddale Ave., Minneapolis 16, Minn.

All-steel and all-welded, the tubular end



frames have a standard height of 6½ feet and are available in two widths—3 feet and 5 feet. Built-in floating coupling pins and "Speedlocks" are standard equipment in each frame for safety and erection ease.

Swing Scaffold

An all-metal "swing" scaffold, consisting of gear type winch and a trussed steel stage with work area of expanded metal, has just been added by Bil-Jax, Inc., Archbold, Ohio, to its line of tubular steel scaffolding.

The winch has a capacity of 1,000 lbs., is equipped with 75 feet of steel cable, and has drum capacity for 75 feet. It has an automatic brake, pawl engaging in a ratchet, for safety. The standard stage is 30 inches wide and 20 feet long and requires only two winches. No planking is needed as work area is expanded metal. Standard equipment with each stage includes two



adjustable caster wall guides, four 40 inch guard rail posts, and two 20 foot guard rails.

News Items

Neil M. Clark has been named chief engineer for the Wilson-Albrecht Co., Inc. with headquarters in St. Louis Park, Minn. He will be responsible for supervision of the government developmental contracts held by the company. He will also direct product research and development. A graduate of the University of Minnesota with a degree in mechanical engineering, Mr. Clark joined the steel scaffolding firm in 1948. Prior to his recent appointment he was manager of the company's Elyria, Ohio, plant.

* * *

Louisville "Safe-Weight" aluminum ladders will be manufactured and sold by the Louisville Ladder Co. after November, 1951. Formerly these aluminum ladders and scaffolding products were manufactured and distributed by Louisville Metal Products Co., whose activities will be directed hereafter toward developing additional products of aluminum. No change in policy or personnel is contemplated.

* * *

George P. Long has joined the Cleveland Chain & Manufacturing Co. as assistant general sales manager. Mr. Long comes to Cleveland with more than four years of experience in the chain industry, most recently in a sales administrative capacity. He attended the University of Pittsburgh, where he majored in business subjects. From 1943 to 1946 he served as an officer on a mine sweeper.

* * *

Hild Floor Machine Co., 740 W. Washington Blvd., Chicago 6, announces an "oldest floor machine" contest. This contest, in celebration of the 25th anniversary of the company, consists of a search for the oldest floor machine still in use.

"There are no strings tied to this offer," declares Fred C. Hild, founder and president. "Any make of floor machine is eligible, although we hope the winner will prove to be a Hild machine. All that's needed to enter the competition is to send us the make and serial number of your floor machine. In the event that your machine is declared a winner, we will also want proof that the machine is still in regular use." Five hundred dollars will be given in cash prizes and entry blanks may be obtained by writing a postcard to: Contest, Hild Floor Machine Co., 740 W. Washington Blvd., Chicago 6, Ill.

TRADE PUBLICATIONS

in the Safety Field

These trade publications will help you to keep up-to-the-minute on new products and developments in industrial health and safety equipment. They are free and will be sent by manufacturers without obligation to readers of NATIONAL SAFETY NEWS who are responsible for this work. Send in the coupon below checked for the publications you desire. Please make your requests promptly.



1. "Antiseptic Soaps for Industrial Use": Booklet based on studies of industrial dermatitis, discusses the different causes of this ailment and presents a preventive program employing the use of industrial soaps. Armour and Co.
2. **Aluminum Ladders:** Illustrated catalog lists a line of straight and extension ladders, platforms, trestles, planks and stages, as well as ladder accessories. Specifications and suggestions on the proper care and use of equipment. Louisville Ladder Co.
3. "Stop Guessing About Safety Belts": Illustrated pamphlet features a reprint article on research and testing of safety belts, and includes a description of the "Safigraph" test with instructions for those who wish to conduct their own tests. Rose Mfg. Co.
4. "Bronze Welding Electrodes": An attractive wall-chart gives general description, applications, mechanical properties and chemical composition, current and polarity of bronze electrodes. A selection and preheat chart is included. Ampco Metal, Inc.
5. "Plant Protection for National Defense": A manual of rules and instructive information to guide watchmen, guards and supervisors in establishing a plant protective system. Watchclocks and patrol recorder equipment described. Detex Watchclock Corp.
6. "Good Vision Is Good Business": Booklet explains a program for improving vision and protecting workers' eyes by coordinating professional prescriptions with safety requirements of specific jobs. Willson Products, Inc.
7. **Industrial Lights, Lamps, and Lanterns:** Justrite Catalog No. 581-R features utility and safety lights, railroad and signal lanterns, and carbide lamps. A line of safety cans including oily waste cans, and dispensing cans is also described. Justrite Mfg. Co.
8. **Multiple Use Floor Machine:** Folder illustrates uses of an electrically operated floor machine with interchanging discs for polishing, steel wooling, sanding, grinding, and trowelling, in addition to dry and wet scrubbing. Hild Floor Machine Co.
9. **Plastic Protective Clothing:** Ply-Garb Catalog describes aprons, safety suits, overalls, rainwear and accessories made of a fabric reputed to be water-repellent, resistant to corrosives and flameproof. Fabric samples included. The Milburn Co.
10. "Smoke Detecting Systems": Illustrated booklet gives description and engineering specifications of fire-detecting systems which actuate audible and visual alarms when the presence of smoke is detected by a photo-electric unit. C-O-Two Fire Equipment Co.
11. "Glass Hats": Illustrated folder describes the "Hard Boiled" line of conventional and lamp-bracket style safety hats, in permanent molded colors, and made of Fiberglas: a material developed for strength, resilience and lightweight. E. D. Bullard Co.
12. "Wooden Sole Safety Shoes": An illustrated brochure lists safety shoes with "natural curvature" wooden soles and with or without steel toes. Also, strap-on wooden soles and sandals, and waterproof boots. Recco Wooden Sole Shoe Co.
13. "Factory Hands": Illustrated folder describes a sulphonated oil, non-lathering skin cleanser and supplemental, non-abrasive, corn meal scrubber for use in industrial washrooms. Individual and wall-type dispensers also featured. The Stepan Chemical Co.
14. "Safway Moto-Lift": Literature on steel scaffolding features a battery operated, rolling maintenance tower which lifts the work platform up to 17 feet by hydraulic pressure. Specifications, operation and structural details included. Safway Steel Products, Inc.
15. **Fire Extinguishers and Extinguishing Systems:** 16-page, illustrated catalog lists fire extinguishers and systems for all class fires. Featured is the Randolph "6," a one-hand, trigger action, carbon dioxide extinguisher. Randolph Laboratories.
16. "Traction-Action": Illustrated folder announces "Floor Safe," an anti-slip, self-polishing, synthetic-resin floor dressing which has a high co-efficient of friction. May be used on all types of wood, resilient and non-resilient floors. Masury-Young Co.
17. **Central Vacuum Cleaners:** Descriptive Bulletin No. 133 features permanently installed, built-in cleaning systems for commercial and industrial use. Specifications and tables on equipment which include vacuum producers, separators, etc. Spencer Turbine Co.
18. "Scott Air-Pak": Illustrated pamphlet on industrial or fire-fighting breathing equipment which uses air, not oxygen. Equipment described includes the self-contained Back-Pak, Sling-Pak and extension hose models. Scott Aviation Corp.
19. "Breck Industrial Preparations": Booklet discusses industrial dermatitis and describes hand cleaners, protective cream, water resistant cream, and work cream for use after exposure to degreasing material. John H. Breck, Inc.
20. **Occupational Visual Service:** Illustrated folder announces a new visual screening test and program for industry. Explanation of the various phases of examinations, and interpretations of the test forms are included. Keystone View Co.
21. "Sling Handbook and Riggers Manual": Book gives dimensions, weight and safe load data on sling types and fittings. Directions for splicing and standard hand signals for operation of cranes and derricks are illustrated. Union Wire Rope Corp.

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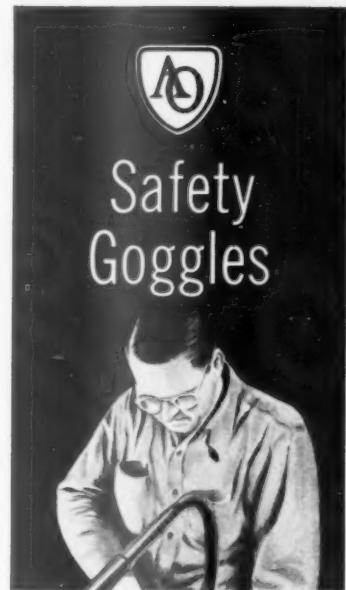
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